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MOTOR BOATING



New York Show Number

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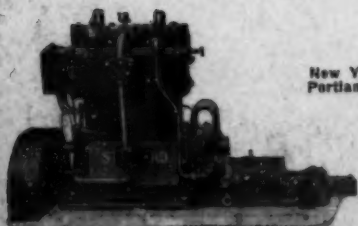


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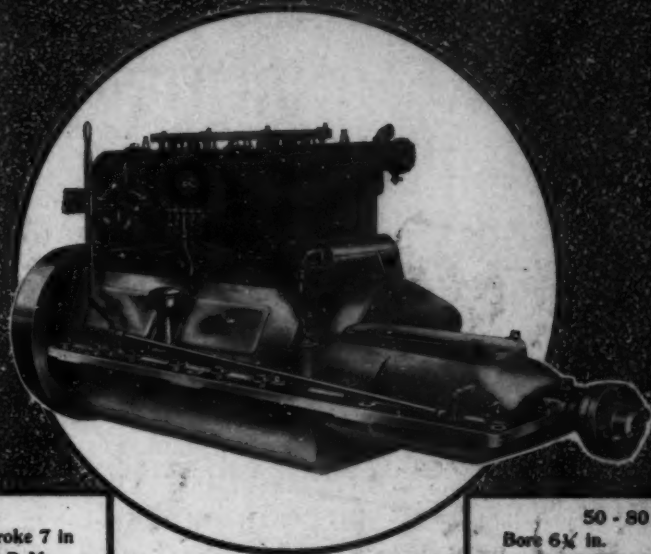
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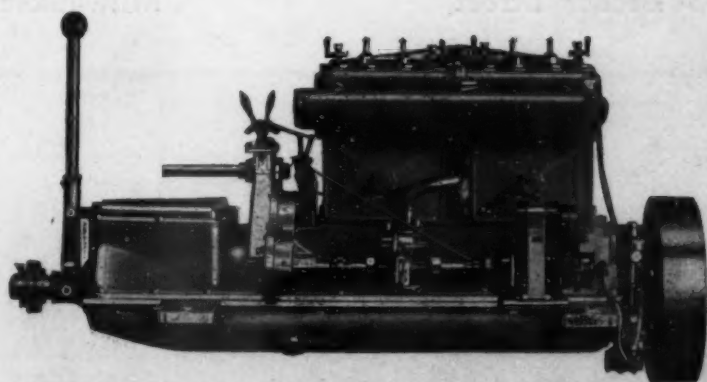
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20 H. P. High Speed Engine with Universally Adjustable Rear Starter

A very interesting little folder has been prepared relative to this unique motor, and we feel sure that you would be really interested in reading it, and it will be a pleasure for us to send you a copy if you will but write for it.

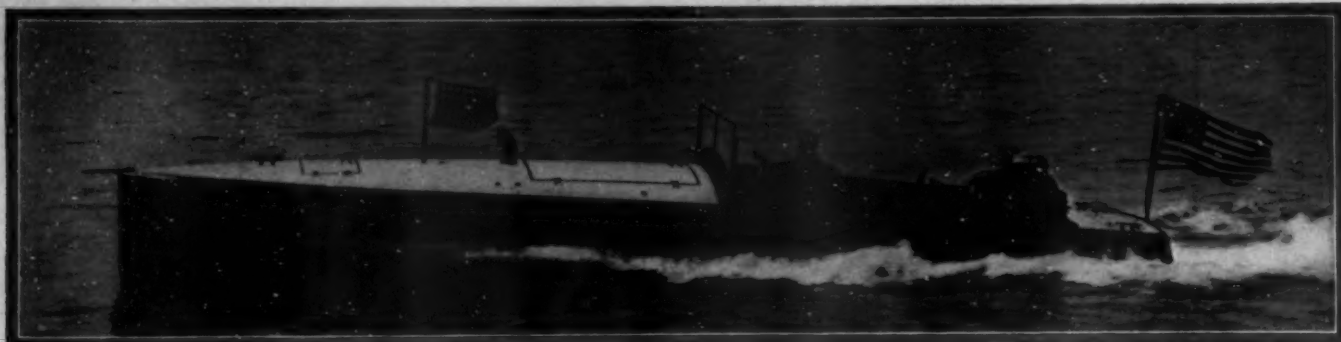
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February, 1915

**MOTOR
BOATING**

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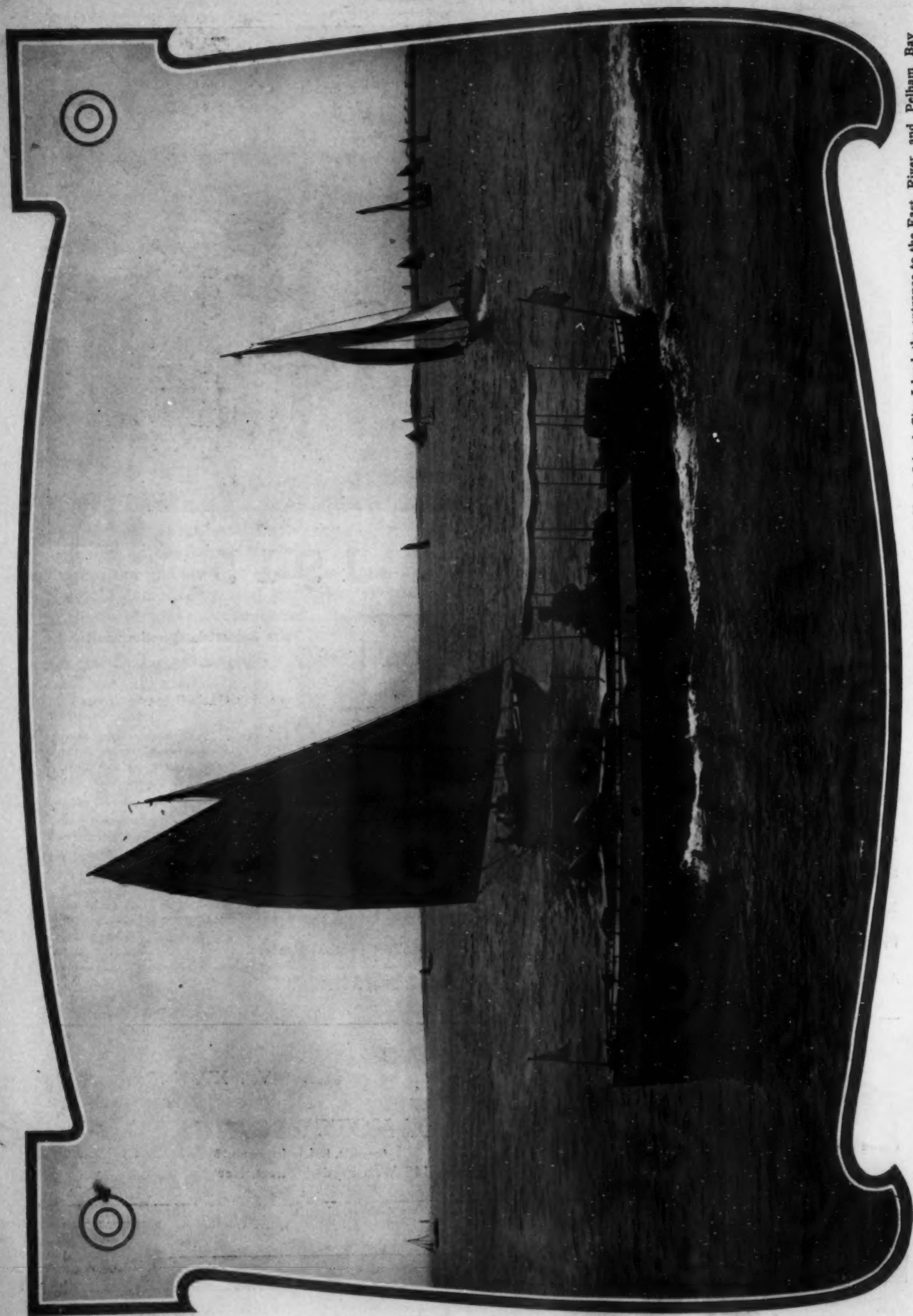
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In the midst of things well known to eastern motor boatmen—The western end of Long Island Sound with the mainland, Hart's Island, City Island, the entrance to the East River and Pelham Bay ahead of the observer, while abaft lies Execution Light, Sands Point, Hempstead Harbor and Glen Cove, the rendezvous of the New York Yacht Club.



MOTOR BOATING

THE NATIONAL MAGAZINE OF MOTOR BOATING

The 1915 Motor Boat Shows.

The Exhibitions in Madison Square Garden and the Coliseum.
The National Shows at New York and Chicago and What They Mean.

OLD MADISON SQUARE GARDEN is housing another classic exhibition of boats, motors, marine accessories and other things nautical and aquatic. Later this month the exhibits, almost intact, will be moved westward, to the Coliseum in Chicago to impress upon the western yachtsmen, and those who hope to be yachtsmen some day, the magnitude of the great marine industry, as well as the possibilities of motor boating as a sporting pastime and a commercial enterprise.

Last year the experiment was tried for the first time of having two great national motor boat shows, one in the east and the other in the middle west, and the trial proved so satisfactory that the same arrangements have been repeated this year. The plan of having the New York Show about a month earlier than was formerly the custom was very favorably received, and results to both manufacturer and buyer were an improvement upon previous procedure.

The 1915 shows are real *Boat Shows*. In the past there has been the criticism that there was a great absence of hulls at the exhibitions, and such criticisms were justified, too. But this year it is different, for the management has made a great effort to get an assortment of hulls together which will fit anyone's pocket-book, as well as any requirement of seaworthiness, speed and comfort afloat.

We find the cruiser given much more attention than ever before; not a type which was never designed and, like Topsy, simply grew, but a design upon which much thought and money

have been expended to produce the boat most suited to meet the conditions for which it was intended. We find much study given to the location of the power plant and the gradual elimination of the idea that the engine must occupy the best and most comfortable position in the cabin. As marine motors are built to-day, it is unnecessary for a mechanic to sit alongside of them with an oil can in one hand and a monkey-wrench in the other, constantly nursing them into action. Consequently, the engine can be moved into some space a trifle more remote from the general living accommodations of the boat.

Runabouts, too, show improvements which will be well received by the enthusiasts who have reason to be strong for this type of craft. Changes in the underbody sections seem to have produced easier driving qualities, with the result that the 8-or-9-miles-an-hour boat is a thing of the past.

One point which, in particular, is brought out by the exhibitions of boats at this year's shows is the desirability of going to a reputable and established boat building concern for one's new boat. True it is that there are many so-called boat builders who are satisfied to construct a boat for you according to their own ideas at a figure which will give them day's wages without any further profit, but there can be no question that in the end this will be by far the most expensive way of going about it. Not only will the cash account be favored in the long run by having a craft built by one who knows how, and whose business it is to build real

(Cont. on page 60)



An up-to-date runabout, capable of better than 20 m.p.h.



One of the beauty spots on Useppa Island, Pine Island Sound.

THE gentle art of spoofing, as our English cousins call it, or throwing the bull, as it is in our own phraseology, nowhere attains to greater perfection than among the retired sailors and land-going salts who delight to gather on a pierhead and give the visiting motor boatman tales of dangers encountered and miraculously surmounted in navigating the raging local waters. These maritime toreadors manufacture storm-swept islands out of sheltered shoals and boiling caldrons out of gentle tide rips, with the result that the credulous stranger hesitates to venture from the dock without a full suit of life-preserving overalls and a revenue cutter hovering in attendance. Take my own case, when I made known to a group of local authorities at Fort Myers, Fla., that I contemplated a one-man trip in a 25-footer from that thriving city up the west coast to Tampa, 150 miles distant.

"Well," said one Florida cracker, "I recall the time I made that trip myself. I was coming down from Tampa in a 37-footer that had only six horse in her—not enough power, you know. Got off Captiva Pass at midnight, wind howling in from the Gulf, tide pouring out of the Sound, nasty sea kicking up, black as pitch—took some nerve to try to run that Pass, I tell yer." (One of the narrator's cronies put added edge to my interest by interrupting with "I betcha.") "But I put her nose into it," my truthful informant went on, "and hung on for dear life.

"Now, I just struck the first of that ebb tide and for five hours I couldn't gain an inch, but stood on just like I'd been anchored. To make it worse, the wind shifted me out of the channel, and if the old girl had missed a single cough I'd 'a' gone smack on to the bar. Exciting, eh? At about sun-up the tide slackened and I worked in to protected water. And, would you believe it, that single kicker died from lack of gas as I hove the hook over?"

Sure, I believed it, just as I was taken in by the man who was stranded in the Gulf when his carbureter



The railroad dock and phosphate chute at South Boca Grande.

ALONG the

A Three-Day Trip Up the Interesting to Tampa. What Even a Divertisement for

By Alfred

froze in the cold snap of '99, ten years before this lad ever heard of a carbureter, and believed the man who saw a tarpon bite his brother's foot off. As I say, I believed all these things, but, though thoroughly scared, I had to take the boat up to Tampa where I would meet my cruising partner, who had been called north on business. So I put on the required amount of gas and headed down the Caloosa River to Puntarasa.

This first part of the trip is uninteresting, except, perhaps, for the presence of the coots, which, though tame in the immediate vicinity of Myers, where they are protected by law, are wilder than wildcats outside the one-mile limit. I had laid out compass courses for the day's run up Pine Island Sound to Boca Grande, but, finding the water smooth, took to making short cuts, following the leadership of other small craft and the evidence of the water's depth as determined by my sounding pole, before I reached



Punta Rasa Hotel.



In the shelter

ernment dredge in Charlotte Harbor.

partial

of a gov-

St. James City. The way past Chino Island, leaving this body of land on the starboard hand, is indicated by three beacons and an occasional superannuated finger post, making navigation for the stranger comparatively easy, but the beginning and ending of the shoal which juts out to the north of this island is rather hard to locate, so I took the long way around and

headed off to port toward Blind Pass and then straightened out on a N. N. W. course in the direction of Captiva Pass of which I had been hearing so much. About this time a peculiar grinding noise began to bring itself to my attention,

GULF COAST

West Coast of Florida from Myers Small Boat Offers by Way of a One-Man Crew.

F. Loomis

and as the clutch, which had been made by some one-horse genius of not even local reputation, had gone out of business twice already, I became apprehensive, and stopped the engine to do a little exploring. The noise stopping with the engine, the sudden booming out of the surf, and an outburst of laughter from a cluster of stilt-mounted houses on Bayras Islands far off to starboard rang out strangely across those lonely waters.

Examination proved that the grinding, while not in the clutch itself, was attributable to the design of the beast, which provided no means of holding grease on the thrust bearings. Oil, however plentifully applied, was immediately thrown off, with the result that the balls, which were of none too generous size, heated up and were crushed. With the prospect of a fifty-mile outside run before

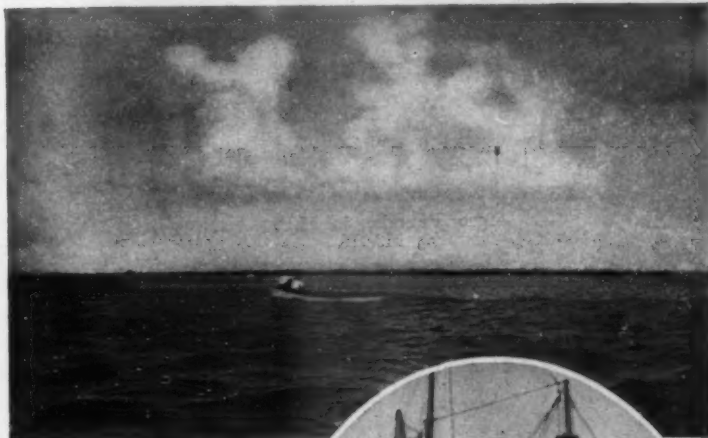


The main street of Palmetto, on the Manatee River.

The captain of the schooner to whom I went for information first extracted my history from me, and on learning that two of us had come from New York in a 25-foot cruiser, and that I was proceeding alone to Tampa, told me that Dr. So-and-So was in need of just such critters as I to fill his insane asylum, and that if I would run up to a small dredged bayou hard by Boca Grande, I'd find good shelter for the night and be that much nearer his institution. Thanking him for his advice and instructions, I cast off and skirted Gasparilla Island for a distance of two miles, the east wind and short rollers striking the boat abeam and throwing her about until the fog bell jumped out of its socket and struck one on the flywheel. The dredged cut into the basin, like most such Florida channels was marked by two piles set up one dark night by two blind men, but I managed to find the way in after kissing bottom gently once or twice.

Safely inside I had the anchor over, the screens in place, and the boiling hot soup on my legs in exactly the length of time required to bring the first course of my meal up to the proper temperature. While dangling my legs in the water for the dual purpose of easing the pain and cleansing the trousers, I glanced around and saw a cruiser whose lines had a familiar look, so, after I had stowed the rest of my supper in the proper place, I dinked over and found her to be the famous Havana cruiser Ilys, now sailing under another name. The two members of her complement left aboard, while the others were enjoying the movies, were angling for catfish, throwing them back when caught. This is pretty poor sport, as the fish are bold enough in these waters to brush against your hands when you're washing them over side. However, we had a pleasant chat, and richer by half a dozen grapefruit, I made my way back to the boat for a long sleep and an early start.

(Continued on page 60.)



On Tampa Bay.

me I was relieved to find no serious trouble, and, starting up the engine, headed for Useppa Island, and was soon threading the channel past the famous Tarpon Inn, and on to Boca Grande. Crossing this messy strip of water, I found the wind sweeping full blast across Charlotte Harbor and



Beating narrow up the channel of the Calooshattee near Punta Rasa.

fighting it out in the pass with an incoming tide; five minutes of banging about at the South Boca Grande Railroad dock, partially protected though I was by a big four-mast phosphate schooner and a government dredge lying there, convinced me that I would have to seek a quieter place for the night.



Tarpon Inn, the famous rendezvous of West Coast anglers.

49

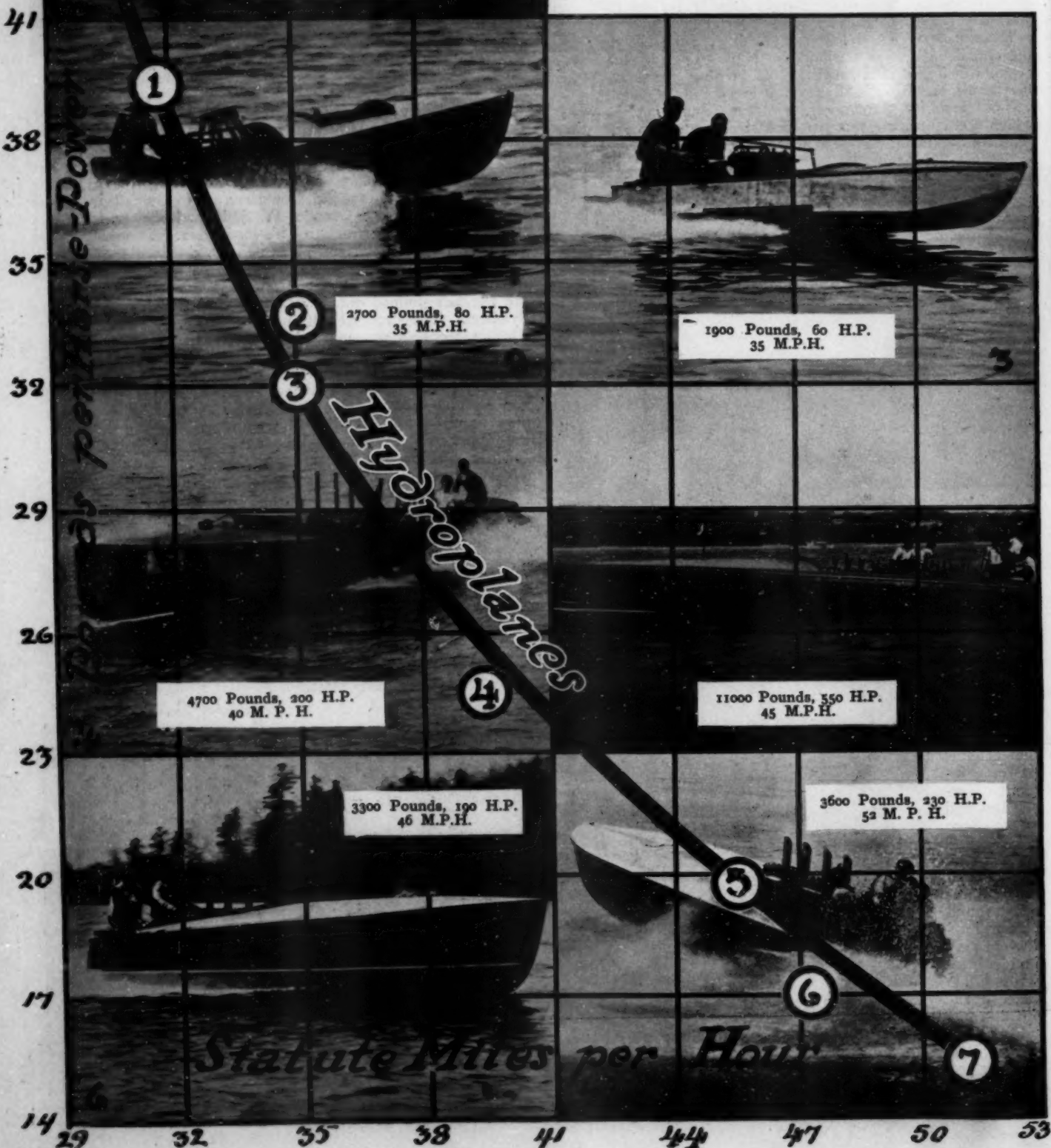
Power vs. Weight

What the Determination of the Speed of Dis-
Upon. Horsepower Always Trying to Increase

By Charles

EVER since the first theories of naval architecture were evolved by the ancients it has been generally accepted as true that the speed of a boat increases in proportion to the cube root of its power, other things remaining constant; that is, to double the speed of any particular boat requires eight times as much power. It also has been a pet idea of every one that the length of the boat is an important factor in the determination of its speed.

While all of these laws were perfectly true in the



in Speed Boats.

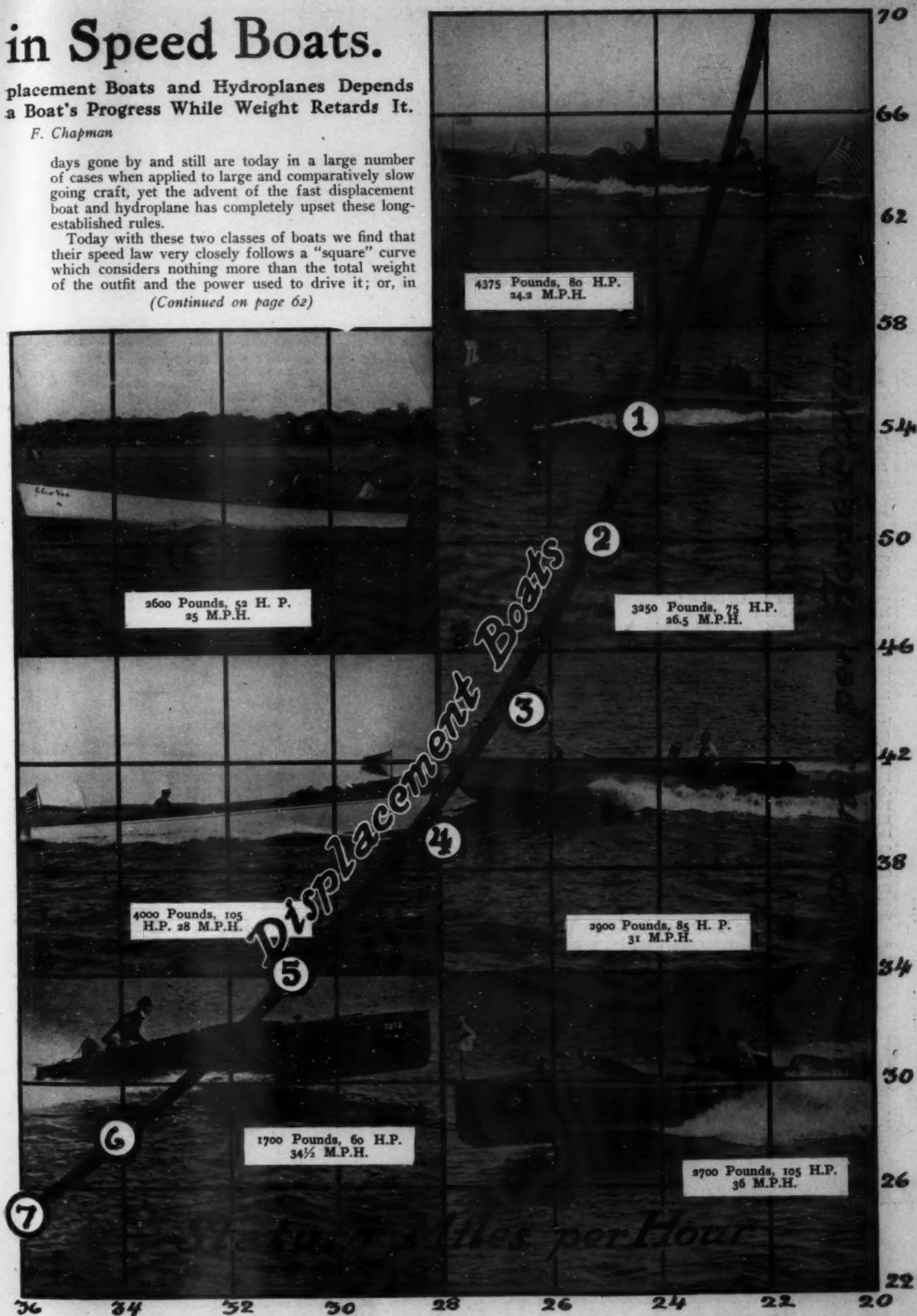
placement Boats and Hydroplanes Depends
a Boat's Progress While Weight Retards It.

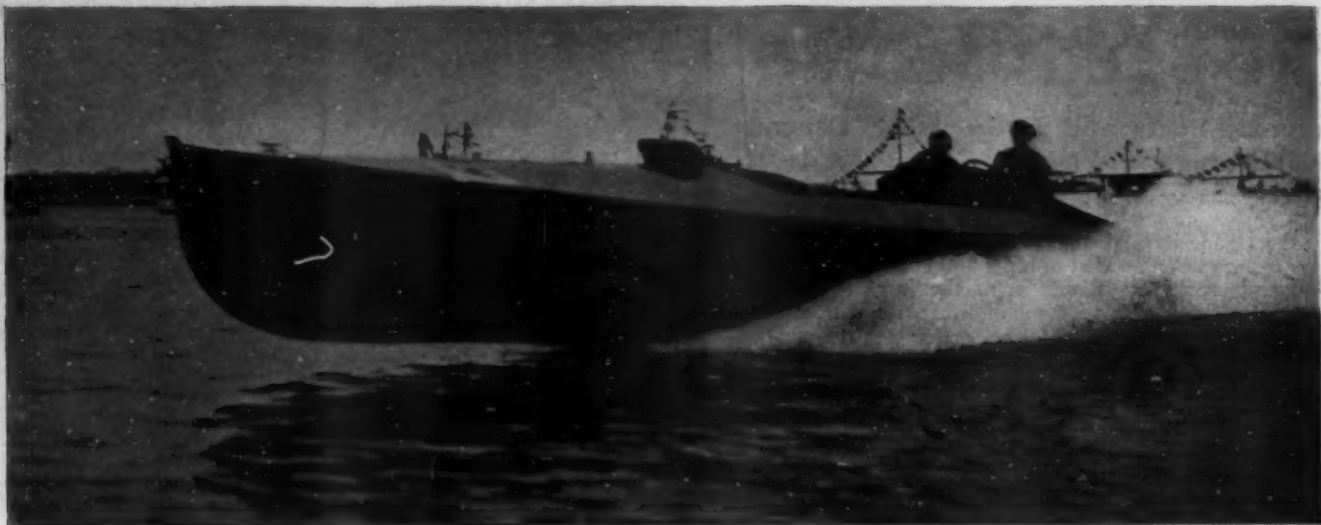
F. Chapman

days gone by and still are today in a large number of cases when applied to large and comparatively slow going craft, yet the advent of the fast displacement boat and hydroplane has completely upset these long-established rules.

Today with these two classes of boats we find that their speed law very closely follows a "square" curve which considers nothing more than the total weight of the outfit and the power used to drive it; or, in

(Continued on page 62)





Miami, a new 30-foot hydro owned by Carl G. Fisher, of Indianapolis. She has two 200 h.p. Sterling motors.

The First Races of 1915.

The Hydroplane and Displacement Boat Races Which Put Miami on the Map as a Racing Center. Baby Speed Demon II and Baby Reliance V Divide Honors Evenly and Fast Cruisers Show Form.

By W. Clayton Pryor.

THE opening gun of the 1915 racing season was fired at Miami, Fla., on January 15th, when Commodore Blackton's famous hydros, Baby Reliance V and Baby Speed Demon II, and Carl Fisher's new Bebe Shadow brought some real speed to Florida's waters, and made a success of the first annual Miami Regatta. Events on this day and Saturday, the 16th, were scheduled as well for open displacement boats and fast cruisers, and interest in the races was keen among the yachtsmen and tourists, afloat and ashore, who lined the course on Biscayne Bay, off Alton Beach.

The races which were promoted and backed by Carl G. Fisher, of Indianapolis Speedway fame, and his assistant, Will J. Dobyns, also of Indianapolis, were held under the auspices of the Miami Board of Trade and the Bay Biscayne Yacht Club, and the following officials sat in the judges' stand: Robert E. Power, judge; Charles W. Kotcher, assistant; Kirk Munroe, timer; Bradford Burnham, clerk; F. N. Munroe, starter, and judges, Oscar T. Conklin, S. Bobo Dean, E. C. Romfh, E. B. Douglas and H. G. Ralston, of Miami. Cups and trophies were up for all winners in the various events.

The conditions for racing on the first day were ideal, the bay being almost perfect in its smoothness. On the west side of the three-mile course the line of anchored yachts, many with gay pennants and signal flags floating to the breeze, presented a beautiful picture. The

course was practically cut off from the outer world, as far as visible signs were concerned. The first event of the day, the race for open displacement motor boats, was announced at 1:15 p. m., fifteen minutes earlier than scheduled. It was a fifteen-mile race, five times around the course.

The boats entered for this event were perhaps, owned by E. C. McGraw, of Pittsburgh; Maris, owned by George T. Lippincott, of Philadelphia; Dorothy, belonging to Dr. Van Dyke, of Miami, and C. P. Ryman's Dorothy D, of Palm Beach.



Baby Speed Demon II, winner of the first race at 45.1 m.p.h.



Baby Reliance V, owned by Commodore J. S. Blackton, winner of the hydroplane event on the second day, at the rate of 43 m.p.h. This boat is powered with a 200 h.p. Sterling racing engine.



Shadow, Carl Fisher's cabin cruiser, a close second in both days' races. She has two 100 h.p. Speedways installed.

Only two of these entries, however, Maris and the Dorothy D, started. Both boats are trim and pretty little craft, and each looked capable of putting up a good race. At the firing of the gun, Dorothy D spurted ahead and kept that position until a short distance past the first turn, when Maris overtook and passed her. After passing her opponent, Maris held her lead throughout the remainder

of the five-lap race, winning the event in 36 minutes and 18 seconds. Dorothy D's time was 39 minutes flat.

Maris, the winning boat, is 30 feet in length, has a 6-foot beam, and draws 2 feet 6 inches of water. She has a Fay & Bowen, 6-cylinder, 45-65 h.p. engine, with 5-inch bore and 6¼-inch stroke, and is capable of developing close to twenty miles per hour.

The second race of the day, a fifteen-mile event for cabin cruisers over 32 feet in length, had six entries booked. They were Sayonara, owned by James and Charles Deering, of New York; Barota, owned by J. K. Clarke, of Palm Beach; Shadow, belonging to Carl G. Fisher; Skip-a-long, of J. A. King, of Chicago; Freva II, owned by H. B. Haberman, of Miami; and C. E. Wellman's Clio II, of Chicago. Only four of the six entries started.

At 2:30 p. m. the

starter's gun was fired, and the yachts began the fifteen-mile grind. The start was scattered, the competing boats getting away in the following order: Sayonara, Freva II, Barota and Shadow. Freva II, in spite of her favorable position, fell far behind, and, at the end of the first lap, dropped out of the race. Shadow, from her position in the rear, made a quick spurt, and got second place, next to Sayonara. This position was held until the beginning of the third lap, when Shadow, by an effort, caught up with and passed the swift-moving Sayonara, at the first turn. This advantage, however, was not held long, for Sayonara, once on the straightaway again, passed Shadow, relegating her to second place. Barota continued in third place, about one and one-half laps behind the others.

At the end of the fifth and last lap, Sayonara led Shadow by several seconds, her time for the fifteen miles being 43 minutes and 20 seconds. The race between the winning boat and the Shadow was keen throughout the race, while Barota was hopelessly outclassed.

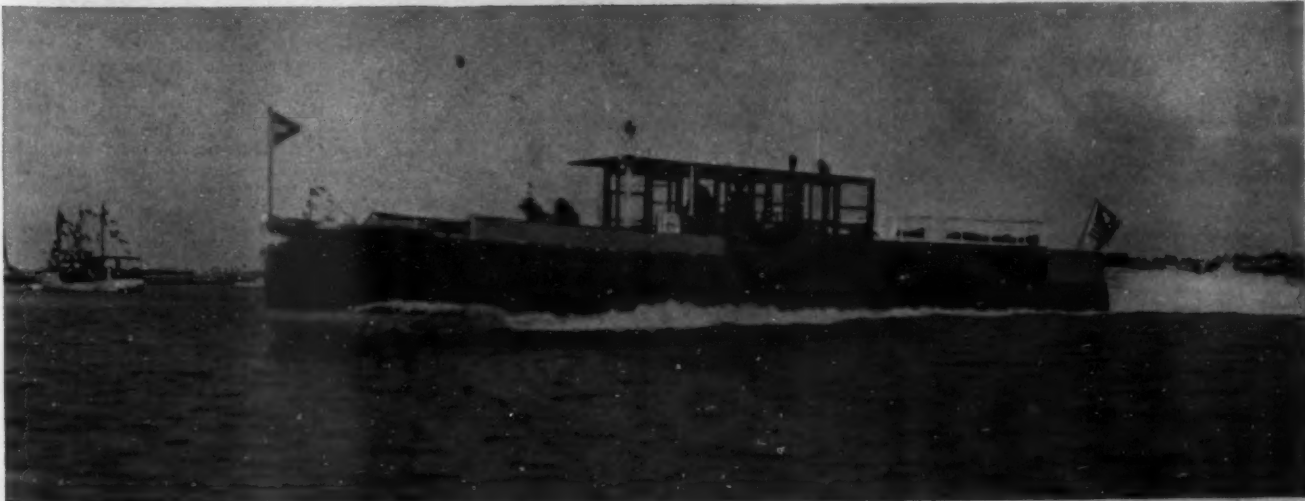
Shadow is 48 feet long, 9 feet of beam, and draws 3 feet. Her power plant consists of two 6-cylinder, 6 x 6-inch Speedway motors of 90 h.p. each. She is rated as being capable of twenty-five miles an hour. The winning Sayonara is 66 feet in length, has a beam of 10 feet, and a draft of 4 feet 6 inches. She also has two 6-cylinder Speedway engines, which give her a combined horsepower of 200. She is rated at about thirty miles per hour.

The third event on Friday's program, the hydroplane race, was scheduled to begin at 4 p. m., but was started a half hour ahead of the set time. The boats entered were: Baby Speed Demon II, owned by Mrs. J. Stuart Blackton, of New York; Baby Reliance V, owned by Commodore J. Stuart Blackton; Buffalo

(Continued on page 57.)

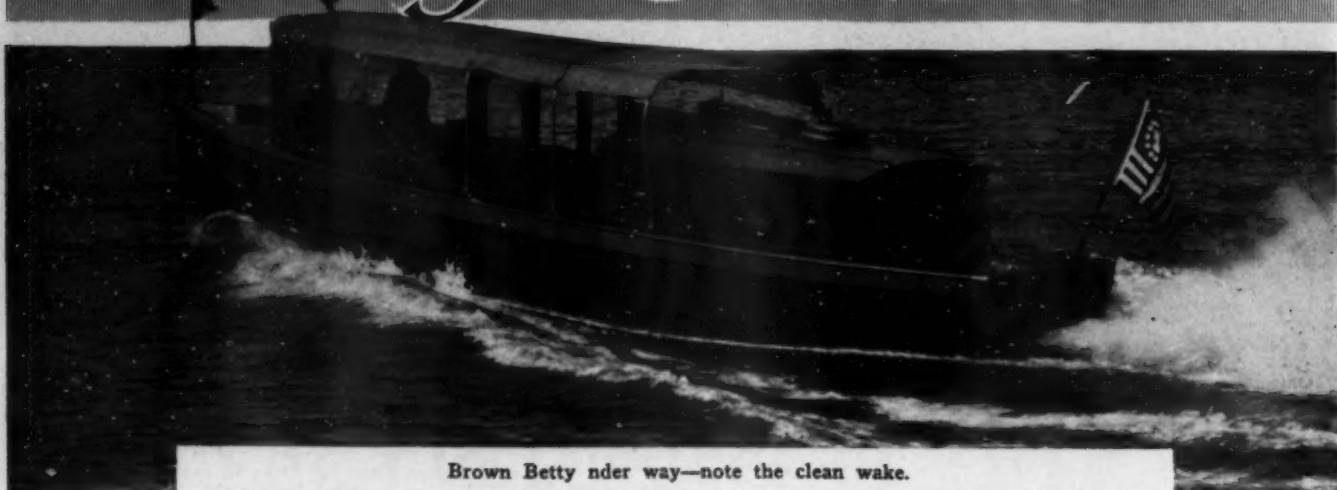


Though not winners, the Fisher boats had the crowd with them.



Sayonara, a 66-footer, owned by James and Charles Deering and powered with two 6-cylinder Speedway engines, winner of Friday's and Saturday's races in her class.

A 21 Mile Day Cruiser



Brown Betty under way—note the clean wake.

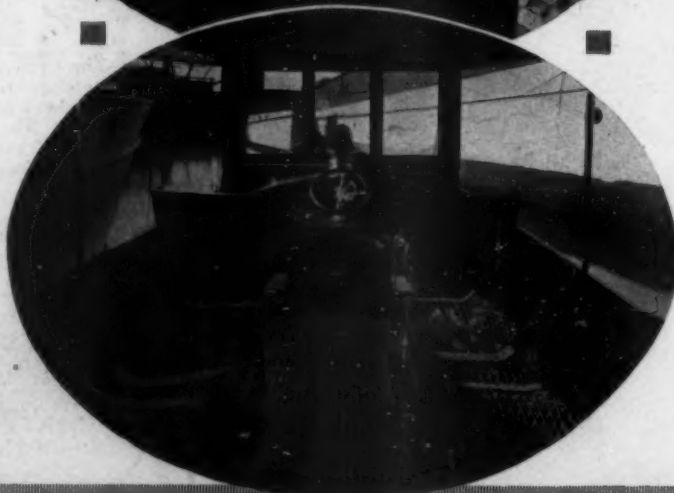
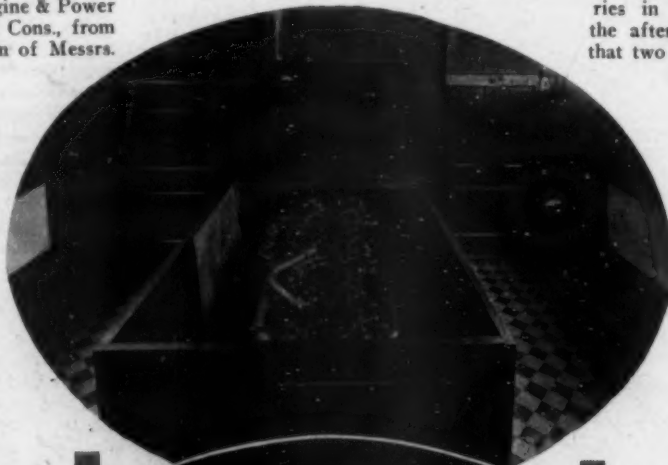
**A Fast Forty-Footer to be Used for Ferry Service and Day Cruising.
A New Yorker's Idea of What the Modern Motor Craft Should be Like.**

THE accompanying plans and photograph will give you a very good idea of the 40-foot speed day cruiser, Brown Betty, recently completed by the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., from designs and under the supervision of Messrs. Tams, Lemoine & Crane, for Louis Gordon Hamersley, of New York.

The boat is 40 feet O. A.; 39 feet W. L.; 7 feet 6 inches beam; 3 feet 6 inches draft, and she has a speed of 21 miles an hour. Only the best of construction, materials, and workmanship entered into the boat.

Keel is of white oak, one-piece stem hackmatack, as is also stern post; motor foundation of elm, set between double frames; frames of elm, steam bent; she is double planked; inner thickness, $\frac{3}{4}$ -inch cedar; outer, $\frac{1}{2}$ -inch mahogany, with canvas laid between; is copper fastened and riveted; all deck trim and finish throughout of mahogany; decks are all white pine; large cockpit forward, in which is helmsman seat; this cockpit is covered by removable awning and side curtains; has windshield; has complete automobile control, so that the boat is, at all times, under absolute control of the helmsman. After the forward cockpit is the engine cockpit, in which is the motor, an 8-cylinder 150 h. p. Sterling, which has given complete satisfaction. This is housed under the removable mahogany hatch, so that all parts are easily acces-

Upper view shows engine and its housing and the lower one the owner's cockpit.

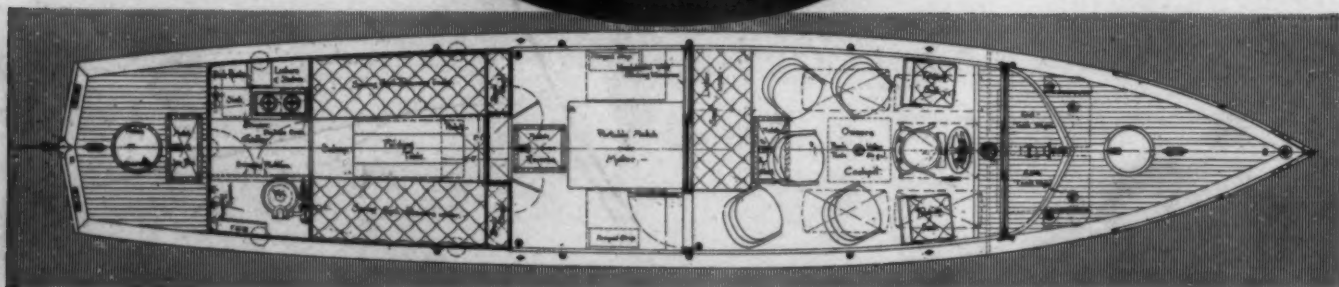


sible at all times; she carries about 180 gallons of gasoline, in 32 oz. copper tanks, installed in the most careful manner; she carries in addition 30 gallons of water. In the after cabin are two transom berths, so that two people can cruise on the yacht comfortably; in this cabin is also a toilet-room as well as a galley with equipment consisting of two-burner stove, portable oven, sink, pump, dresser, dish racks, etc. An ice chest is provided with filling hatch in the after deck. She has a large after deck where there is an auxiliary tiller; the shaft is a Tobin bronze and the propeller a Hyde of manganese bronze.

Brown Betty is a type of boat which has become very popular on the semi-protected waters of the east during the last few seasons. Being given plenty of power they are capable of a good turn of speed for day cruising and yet have considerable in reserve for emergencies or when making long runs. Their fuel capacity is of such proportion to allow a sailing radius of several hundred miles without requiring replenishing.

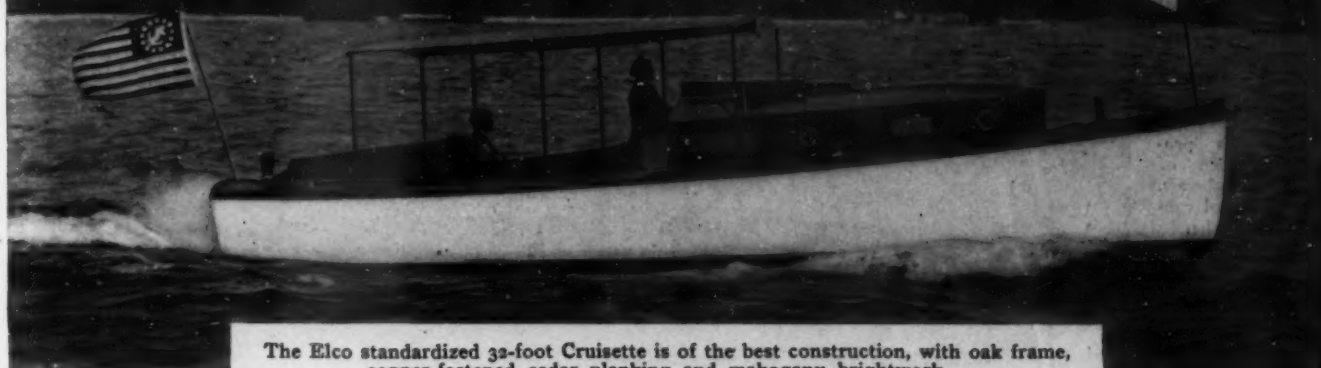
The form of hull given to this type of boat by their designers is such as to be very easily and economically driven at moderate speeds, and special attention is given to seaworthiness and to produce a boat which will be dry at all times. Comfort of the owner and his guests is of prime importance, and the luxurious appointments in the cockpit stand out in contrast to the practice of a few years ago.

—Photographs by Rosenfeld.



Arrangement plan of Brown Betty showing well planned accommodations.

STANDARDIZING THE MOTOR CRUISER



The Elco standardized 32-foot Cruisette is of the best construction, with oak frame, copper-fastened cedar planking and mahogany brightwork.

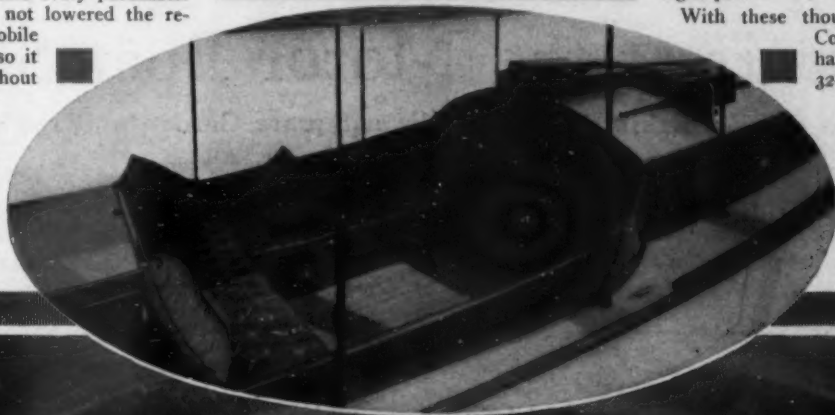
LAND-GOING experts tell us that the secret of the phenomenal success of the motor car is revealed in one word—standardization—and that during the last two or three years the increasing tendency toward concentrating upon one model has aided the standardization of parts in enabling the automobile manufacturer to suit his product to the pocket-book of each and every purchaser. Quantity production has not lowered the reliability of the automobile nor its appearance, and so it happens that almost without exception every automobile owner roots for his particular car with an enthusiasm that includes every part, from motor to grease cup.

On the water we find some of this enthusiasm, but not in the same de-

Length over all.....	32 feet.
Extreme beam.....	8 feet 6 ins.
Draft.....	2ft. 2¾ ins.
Motor, 3-cyl. 18-24 h.p....	Elco-Lamb
Motor installation.....	After cabin
Speed.....	9½ m.p.h.
Sleeping accommodations....	9 persons

gree, as a perfect craft is not always met with, chiefly because of some inherent fault in its design or construction. How many times have you heard friends say, "My boat is a fine speedster, but I'll admit that she is not up to the mark in appearance," or "My cruiser is certainly some sea boat, and I don't care if she doesn't make more than eight per."

With these thoughts in mind The Elco Company, of Bayonne, N. J., have developed for 1915 a 32-foot cruiser, popularly known as the Cruisette, which is unique in its design and accomplishments. The design was evolved from an earnest



The cockpit, protected by awning and curtains, sleep three.



This standardized model is designed to sleep nine persons—two on transoms in the engine compartment, three in the cockpit and four in the cabin. The upper cabin berths are set forward of the fixed transoms to give sleepers in the lower berths an abundance of air.

desire to create a small cruiser which for appearance, construction, cruisability and reliability needs no apology. The Cruisette is 32 feet l. o. a. with 8 feet 6 inches beam and will float in 24 inches of water. There are two cabins, the forward being of the trunk type with windows and port lights providing plenty of light and air. This forward cabin has four berths and their method of arrangement is distinctly unusual. The toilet and galley are both ample. In the after cabin is located the engine and two comfortable berths. For day cruising this cabin is completely closed, thus doing away with the noise and disagreeable features of the engine. The raised central cockpit is a noteworthy feature—a clear view ahead may be had from the cockpit seats, the steering gear and engine control being most convenient.



The Elco-Lamb motor is installed in the after cabin where it is out of the way, though controlled from the cockpit.

The engine is a three-cylinder, 18 h.p. Elco-Lamb with reverse gear and all the latest

improvements. It was especially designed by the Lamb Company to suit the particular arrangement of the Cruisette. The speed is ten miles an hour, and a price has been established which is well within the reach of every one.

The first delivery of these boats was made in November, one starting for Florida via the Southern route. From Charleston, S. C., the owner writes of a most successful trip via the Chesapeake, Albemarle Sound and outside from Beaufort, N. C. In company with ten boats, all much larger than himself, he proved the equal of

any for speed, comfort and seaworthiness. The Cruisettes are standardized in the fullest sense of the word, being built a number at one time, thereby reducing the construction cost to a minimum and enabling the owner to get more for his money than he could otherwise.

Exhibitors at the Motor Boat Shows.

An Index to the Big Exhibitions in Madison Square Garden and the Coliseum.

The names below are of those who have taken space in the two motor boat shows up to the time of going to press with this issue. Some few additional exhibitors will undoubtedly be seen at both as there are always late changes and newcomers. But even so, the list below will be found to be practically complete when the shows open. After each name is indicated whether that exhibitor will be found at Chicago only, at New York or at both shows.

Belcher Machine Shop, Geo. E.	New York Show	Gordon Propeller Co.	New York Show	New York Yacht, Launch & Engine Co.	New York Show
Berry Bros., Inc.	" " "	Gray-Hawley Mfg. Co.	Chicago Show	Niagara Motor Boat Co.	" " "
Billings-Chapin Co.	" " "	Gray Motor Co.	Both Shows	No-Ro Motor Works.	" " "
Bosch Magneto Co.	" " "	Ginman Boat Co.	Chicago Show	Old Roman Solder Co.	" " "
Bridgeport Motor Co., Inc.	" " "	Hall Co., W. S.	New York Show	Palmer Brothers	" " "
Brooklyn Varnish Mfg. Co.	" " "	Hand, Jr., William H.	" " "	Penrose Motor, Inc.	" " "
Bruns-Kimball & Co.	" " "	Heinze Electric Co.	Both Shows	Peerless Marine Motor Co.	Both Shows
Buffalo Gasoline Motor Co.	" " "	Henricks Magneto & El. Co.	New York Show	Platt & Washburn Refining Co.	New York Show
Byrne, Kingston & Co.	Both Shows	Higgins & Seiter	" " "	Pyrene Mfg. Co.	Both Shows
Campbell & Co., A. S.	New York Show	Holmes Motor Co., Inc.	" " "	Ramaley Boat Co.	Chicago Show
Cape Cod Power Dory Co.	" " "	Hunter Boat Co., Everett	Chicago Show	Red Wing Motor Co.	" " "
Carlyle Johnson Machine Co.	" " "	Indian Refining Co.	New York Show	Regal Gasoline Engine Co.	" " "
The	Both Shows	Jager Engine Co.	" " "	Reliance Motor Boat Co.	New York Show
Carpenter & Co., Geo. B.	" " "	Nathrop Engine Co., J. W.	New York Show	Robinson-Rodgers Co.	" " "
Chicago Varnish Co.	" " "	Janney, Steinmetz & Co.	" " "	Scripps Motor Co.	" " "
Clifton Motor Works.	New York Show	Jones, S. M., Co., The.	Both Shows	Simmons & Slade	" " "
Columbian Brass Foundry.	" " "	Kahnweiler's Sons, David	New York Show	Smith Boat & Engine Co., C. C.	Both Shows
Crockett Co., The David B.	" " "	Kermath Mfg. Co.	" " "	Smith & Co., Edward	New York Show
Dayton Electrical Mfg. Co.	" " "	Koban Mfg. Co.	Both Shows	Smith-Meeker Engineering Co.	" " "
Debevoise Co., The.	" " "	Kokomo Electric Co.	" " "	Smith-Serrell Co.	" " "
Devoe, F. W. & C. T. Reynolds	" " "	Koven & Bros., L. O.	New York Show	Snow & Petrelli Mfg. Co.	Both Shows
Co.	" " "	Lamb Engine Co.	Both Shows	Standard Co., The.	" " "
Doman Co., H. C., The.	Both Shows	Lathrop Engine Co., J. W.	New York Show	Stanley & Patterson, Inc.	New York Show
Durkee & Co., C. D.	New York Show	Lawley, Geo. & Son, Corp.	Both Shows	Sterling Engine Co.	Both Shows
Edison Storage Battery Co.	" " "	Lewis Electric Welding & Mfg. Co.	Chicago Show	Sumter Electrical Co.	" " "
Elco Co., The.	Both Shows	Loew-Victor Engine Co.	Both Shows	Sunderman Carburetor Co.	New York Show
Electric Tachometer Co.	New York Show	Luders Marine Construction Co.	New York Show	Thermex Silencer Co.	" " "
Erd Motor Co.	Chicago Show	MacRae, Hector C.	" " "	Tiebout, W. & J., Co.	" " "
Evans Stamping & Plating Co.	Both Shows	Matisse, C. & A.	" " "	Toppan Boat Mfg. Co.	" " "
Evinrude Motor Co.	" " "	McClellan, Chas. P.	" " "	Valentine & Co.	Both Shows
Fairbanks Co., The.	New York Show	Mianus Motor Works, The.	" " "	Van Blerck Motor Co.	" " "
Fay & Bowen Engine Co.	" " "	Michigan Wheel Co.	Chicago Show	Verrier-Eddy, Co.	New York Show
Ferro Mch. & Foundry Co.	Both Shows	Mietz Iron F'dry & Mach. Co.	New York Show	Wheeler & Schebler	Both Shows
Francke Co., The.	New York Show	Miller, Chas. E.	" " "	Willis & Co., E. J.	" " "
Fried & Co., Ernest R.	" " "	Milwaukee Yacht & Boat Co.	Both Shows	Wilmarth & Morman Co.	" " "
Frisbie Motor Co.	" " "	Monarch Valve Co.	New York Show	Winton Gas Engine Mfg. Co.	" " "
Fulton Mfg. Co.	" " "	Monitor Boat & Engine Co.	" " "	Wisconsin Motor Mfg. Co.	" " "
Gas Engine & Power Co. and Chas. L. Seabury Co., Consolidated	Both Shows	Morristown Boat & Engine Works	" " "	Wolverine Motor Works	New York Show
Generator Valve Co.	New York Show	Motor-Compressor Co., The.	" " "	Woolsey Paint & Color Co.	" " "
Gillespie-Boynton Co., Inc.	" " "	Murray & Tregurtha Co.	" " "	Watertown Motor Co.	" " "
Gillespie & Sons, Charles H.	" " "	New London Ship & Engine Co.	" " "		

The 1915 Motor Boat Shows.

A Description of the Exhibits Seen in New York, January 30th to February 6th, and at Chicago, February 27th to March 6th. A Comprehensive Exhibition of Motors, Boats and Accessories.

The Niagara Motor Boat Co., of North Tonawanda, N. Y., are exhibiting at the Garden one of their 32x6-foot runabouts. The boat is handsomely finished in mahogany, stained to that dark rich tone which is so attractive in old furniture, and the cockpit is

the valves and tops of the pistons are accessible, and carbon can be readily removed.

George Lawley & Son, Corporation, of Neponset, Mass., are at the New York Show with two or three of their exquisitely finished

four-cycle motor, and the makers guarantee a speed of 16 real miles per hour. The equipment includes reverse gear, Bosch magneto, electric lights and horn, Rayfield carbureter, W. C. auto steering wheel, lazy-backs, etc. The engine exhibit consists of their 5 and 10 h. p. one and two-cylinder two-cycle engines, a 1 k.w. electric generating set, and six four-cycle marine engines, as follows: four-cylinder 10-18 h. p., with electric starter; four-cylinder 15-18 h. p., four-cylinder 20-25 h. p., four-cylinder, 30-45 h. p., six-cylinder, 30-50 h. p. and six-cylinder 50-75 h. p.—the last a duplicate of the machine in the express cruiser Bitter Sweet, A.P.B.A. champion of South Jersey in 1914.



32-foot by 6-foot runabout shown by the Niagara Motor Boat Co., powered with a 45 h.p. Fay & Bowen engine.

arranged with deep bucket seats upholstered in brown leather. The boat has an auto top fastened on a sliding rail, making it a very simple matter to raise or lower it. The searchlight is located on the raised portion just forward of the engine hatches, and is controlled by a new device working from the bulkhead. A glass windshield fits into the pocket just forward of the bulkhead, and is easily raised or lowered, as it is fitted with weights and operated just as a house window is. This is a new and distinctive feature. The boat is equipped with a 45 h. p. Fay & Bowen engine furnished with electric starter and lighter. This company is also showing in conjunction with the Fulton Mfg. Co., who occupy the space just across the aisle, a 24-foot boat powered with a 20-28-h. p. Fulton engine.

boats and their heavy-duty motors. Lawley boats are the product of fifty years' experience, and the makers have turned out every type of craft from the smallest tender to the largest auxiliary and yacht. They work from their own plans or from those of other architects, and are prepared to build in bronze, steel, wood or composite construction. Every detail of the jobs they handle is done entirely at their yards. Lawley motors are built

One of the three boats shown at the New York Show by the Gas Engine & Power Co., and Chas. L. Seabury & Co., Cons., of Morris Heights, N. Y., is Speejacks, a 50-footer with a speed of 25 m.p.h. This boat, which is essentially a high-speed, sea-going runabout, has a standing roof and glass enclosure forward. The boat is owned by A. Y. Gowen, of Cleveland, O., and was built after his ideas and suggestions. The motor, an eight-cylinder 260 h. p. Speedway, is installed under hinged covers forward. Although really a runabout, Speejacks is fitted with toilet, wash basin, sink, dining table and other cruising conveniences. The other two boats shown are the 1915 model of the 32-foot Speedway runabout, and the 24-foot Speedabout, a new Speedway model at a moderate price. In addition to the three Speedway motors installed in the boats, there are two motors on the floor. One of these is a six-cylinder, 100-120 h. p. heavy-duty machine with 6 1/2 x 8 1/2-inch cylinders cast in pairs, being a new development for this company, and of the enclosed type design, and the other is a 125-160 h. p. air starting and reversible heavy-duty model with bore and stroke dimensions of 8 1/2 x 10 inches. The Speedway alcohol range is also shown.



New Holmes life-boat cruiser, length 36 feet, speed 10-11 miles per hour.

in three sizes—two, four and six cylinders. The two-cylinder machine has cylinder dimensions of 6 1/2 x 9 inches and turning at a speed of 356 r.p.m., develops 20 h. p. The four-cylinder motor with the same cylinder size, is rated at 40 h. p. and the six, measuring 6 1/2 x 10 inches, develops 60 h. p.

Two runabouts and nine marine motors comprise the exhibit of the Fay & Bowen Engine Co., of Geneva, N. Y., at the present New York Show. The boats shown are their Junior Runabout, an original model built and thoroughly tested last fall, and their 26-foot runabout. The Junior is a 24-footer with 5-foot beam, powered with a 3 1/2 x 5-inch

The Reliance Motor Boat Co., of New York City, are exhibiting at New York in conjunction with the Sterling Engine Co., a 26x5-foot 2-inch Cinderella-type fast runabout. This speedy little craft is of mahogany throughout with the finest fittings and furnishings obtainable, including two wicker chairs, mahogany lazy-backs, tufted cushions for steering and stern seats, signal horn, etc. There is installed a Model R1 high-speed Sterling motor which gives this hull a guaranteed speed of 35 miles per hour. This new hull is expected by the builders to do better than did Reliance-Peter Pan which was exhibited last year and which made 36 1/2 m.p.h., with a Sterling engine over a tested course.

The sole exhibit of the C. C. Smith Boat & Engine Co., of Algona, Mich., at the New York Show, is the famous Baby Speed Demon II, owned by Mrs. J. Stuart Blackton, of New York. This is the boat which distinguished herself and her Sterling engine at the Lake George races last summer, and she has just presented her owner with fresh laurels by making the fastest time ever recorded in Southern racing, on the first day of the Miami regatta, when she averaged 45 m.p.h. for 30 miles. She has been brought back from Miami just for the big annual Show.

In addition to the 32-foot Cruisette described elsewhere in this number, the Elco Company, of Bayonne, N. J., have at the show a new 30-foot Elco express having 6-foot beam and large seating capacity, a 36-footer similar to the one exhibited last year, and their 45-foot standardized cruiser. The 1915 model of the 36-foot Express is marked by special details of equipment. The aluminum cowl designed especially for this boat is arranged to house the running lights, and the bow light is contained within a combination bollard to which the mooring lines can be attached. In addition to the boats there is shown the 1915 Elco Express engine which has a bore of 5 1/2 x 16 inches and a stroke of 6 inches. The best of construction and material are employed throughout in the building of these engines, and among their special features is a removable cylinder head with copper asbestos gasket. By removing the cylinder head,



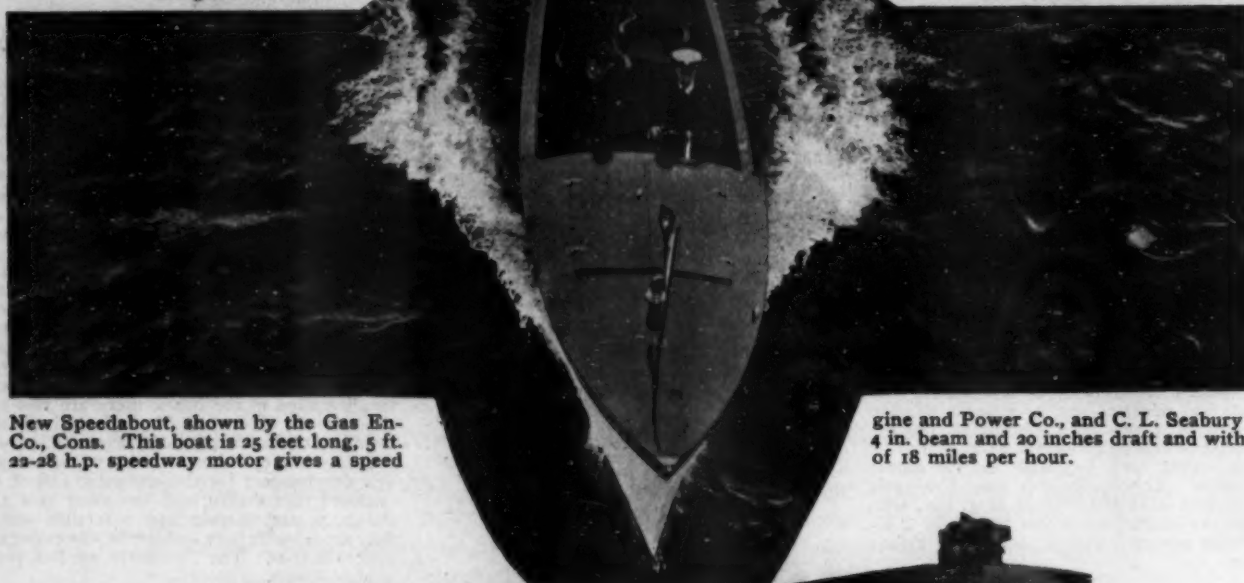
23-foot Government model launch made and shown by the Toppan Boat Mfg. Co.

Stock Boats of the Open Type



30-foot Elco Express with a 65 h.p. motor designed and built

which gives a guaranteed speed of 23 miles, by The Elco Co.



New Speedabout, shown by the Gas Engine and Power Co., Cons. This boat is 25 feet long, 5 ft. 22-28 h.p. speedway motor gives a speed

of 18 miles per hour.

Fourteen-foot, hand-built boat, built by Simmons & Slade for use with a center-board. This boat also is fitted with a center board to allow the use of a sail.

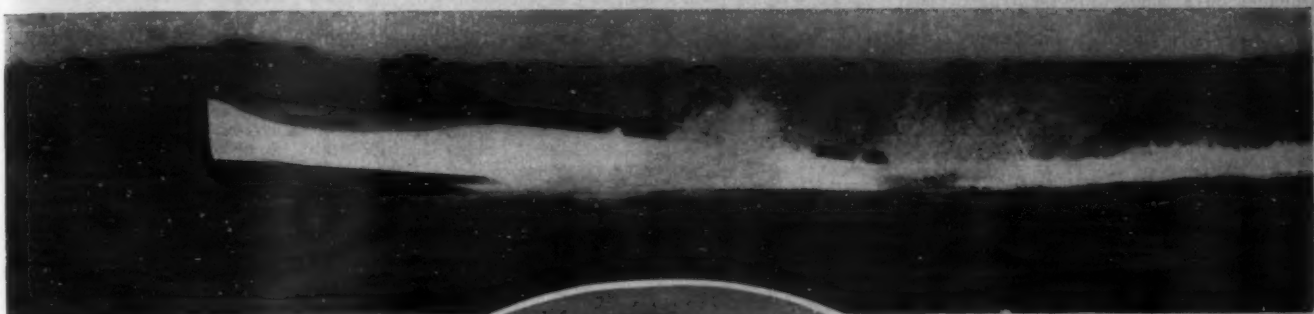


Air cushioned runabout, Whizzer, designed by Morris M. Whitaker, and exhibited by the Ginman Boat Co. A speed of 21 miles is obtained with a 20 h.p. Loew-Victor motor.

Thirty-two foot runabout built by the Gas Engine and Power Co. and Chas. L. Seabury Co., Cons., which is a new edition of the well known, and popular Speedway runabout. She is equipped with a 40 h.p. motor.



at the 1915 Motor Boat Shows.



Exact duplicate of one of the famous Motor Boat Co., capable of

Cinderella models shown by the Reliance a speed of 36 miles per hour.



One of the Baby Reliances built by Co., which hold nearly all of

the C. C. Smith Boat and Engine the world championship titles.



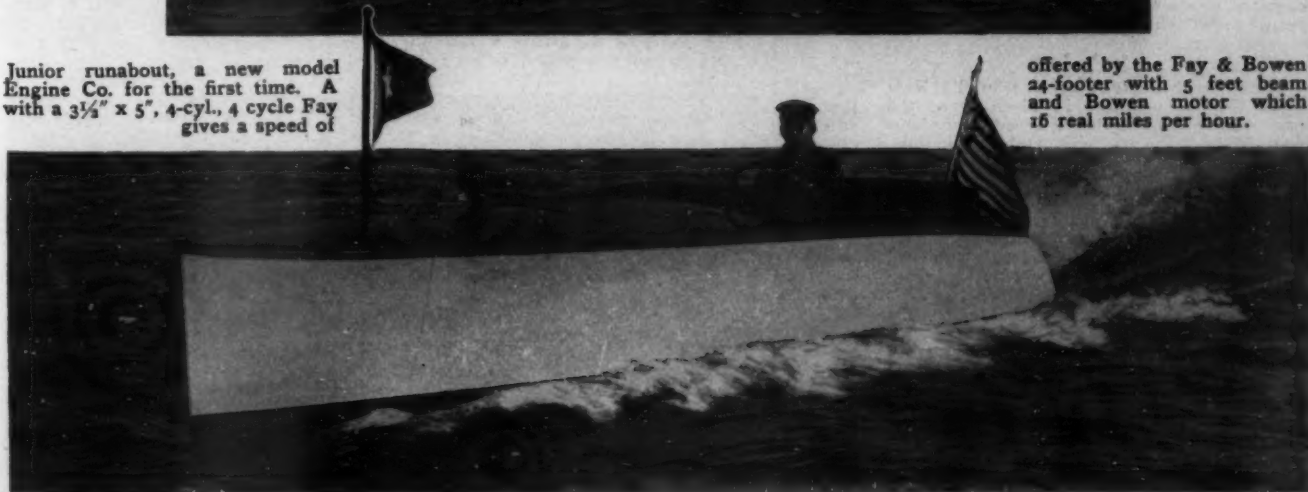
Twenty-foot special built by the Cape Cod Power Dory Co., and exhibited by them at the New York Show.

Skillagallee, a Hand 20 ft. x 4½ ft. runabout, with a model 30, 20 h.p. Loew-Victor engine, giving a speed of 22 miles per hour.



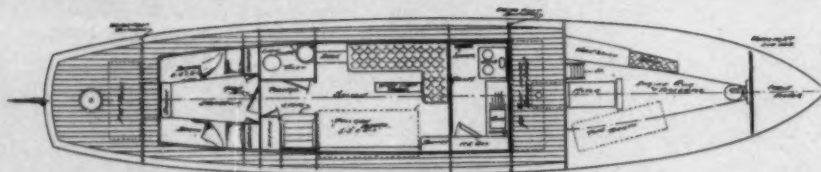
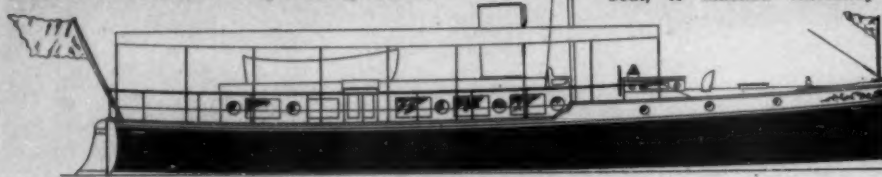
Junior runabout, a new model Engine Co. for the first time. A with a 3¼" x 5", 4-cyl., 4 cycle Fay gives a speed of

offered by the Fay & Bowen 24-footer with 5 feet beam and Bowen motor which 16 real miles per hour.



The Motor Boat Shows.

The Luders Marine Construction Co., of Stamford, Conn., have chosen as their exhibit at the New York Show a cruiser which exemplifies on a small scale the type of boat they have featured for the last few years. This boat is a 50-footer with owner's and crew's quarters separated by a watertight bulkhead. The owner's quarters are aft and are entered from a side companionway which



Fast 50-foot cruiser shown by the Luders Marine Construction Co., a craft which exemplifies a type which this company has been featuring for the last few years.

opens into a vestibule. This vestibule in turn opens into the owner's stateroom, a well-appointed toilet, and the dining saloon forward. The dining saloon is fitted out with a central folding table, mahogany buffet and glass cabinet, a long upholstered L settee and a concealed Pullman berth of extra width which is fitted with the regular springs and mattress. The galley is forward of the saloon and is equipped with ice chest, alcohol stove with oven, dresser, etc. It has a separate exit by ladder and hatch to the deck, and, in fact, all compartments have double exits. The motor installed is four-cylinder 25-35 h. p. Sterling with reverse gear under the bridge deck. The compartment for the crew accommodates two men and is properly equipped with toilet and wash basin. The boat is illuminated by tungsten lamps.

The Monitor Boat & Engine Co., of Newark, N. J., are displaying at the New York Show a considerable number of small models of their various types of knock-down hulls. The latest of these hulls are their cabin sharpies which are furnished in two sizes and are designed for use in shallow inland and Florida waters. They have lines similar to the open sharpies which the Monitor company has been building for several years. Representative members of their two-cycle line of motors are shown this year, as well as the Gere reverse switch which is designed to do away with the necessity for using a reverse gear. With this switch any of their two-cycle motors and others as well, which are directly reversible, may be positively reversed on the spark. This company's new four-cycle engines are expected to be extremely popular this season.

Simmons & Slade, of 5 Nassau St., New York City are showing in Block Z, on the main floor of the Garden, a broad-beamed 14-foot rowboat for use with outboard motors. It is built of 3/4-inch white cedar planking, copper-fastened, with a keel of white oak, and frames and bed-locks of the same material. The deck is of white pine, covered with canvas, and the trim and seats are of mahogany, with brass fittings. The inside is varnished while the hull is painted white with a carmine stripe from stem to stern. Under the deck are two lockers for storing the motor, the sail, and the rudder. There is a centerboard sufficiently large to make the boat a practical sailboat, and the mast and sprit are constructed of spruce and joined in the center so as to be easily stowed under the seat when not in use. Oars and oarlocks are provided. The boat is intended for a general utility craft for family use, and particularly for boys and amateur fishermen. Complete with Evinrude motor, the boat is sold for \$185, or for \$130 without the motor.

The Toppan Boat Mfg. Co., of Boston, Mass., are showing three models at the New York Show of which the 22-foot 1915 Government model launch, equipped with an 8-10 h. p. T. & M. engine, complete with Ball gear, Columbia propeller, etc., is the most attractive.

This boat which is described as an unusually excellent sea boat, is finished extremely

well, with oak decks, linoleum floor covering, and brass fittings, and is fitted up with cushions and other incidentals which make glad the heart of the motor boatman. The second boat is a 10-foot rowing tender which is sold for \$35, and the third boat is the famous Toppan \$175 Sportsman. This boat has a beam of 4 feet 7 inches, and her 2 h. p. T. & M. engine will drive her along with six persons aboard at 7 1/2 m.p.h. The boat has a light draft, and while strongly constructed is light and can be handled comfortably as a rowing boat by two men. The 1915 Sportsman differs from the previous model in that it has natural finished cypress



A 35-foot Monitor cruiser, built from Monitor knock-down frames.

transom and seats, and the coaming and deck are all in natural finish, while the hull is of sturdier construction. The boat is a good sea-goer and is also useful for hunting and fishing and for utility purposes around a camp.

The Ginman Boat Co., of Muskegon, Mich., will exhibit at the Coliseum a "Whitaker Whizzer" of their build. This boat is one which has been designed by Morris M. Whitaker for the purpose of giving a fast dry runabout, which will not pound or slap

when driven into a head sea, and which will be in general what is known as an easy sea boat. The freeboard is ample, and the shape of the sections and chine is such that the boat rides upon the bow wave, cushioning on a mixture of air and water. Constructional features include a white oak keel in one piece, natural crook hackmatack stem, white oak transom and backing, frames of white oak spaced about twenty inches, and planking of the best white cedar, five-sixteenth to one-half-inch thick, according to size. The engine is placed under the forward deck, and rear starter, controls and steering wheel are led through the bulkhead. The helmsman sits on the starboard side with the control levers in the centre. The boat is complete in every detail, and construction and finish are of the highest class.

The exhibits at the Garden of the Cape Cod Power Dory Co., of Wareham, Mass., comprises a very full line of boats, although they do not show all their stock models. They have there a 24-foot dory type cabin cruiser which is used almost entirely as a day cruiser although there are comfortable sleeping accommodations. This little cruiser is designed especially for sea-going purposes, although the draft is comparatively shallow. She is shown without an awning, although this equipment may be had if desired. She is divided off with an 8-foot cabin forward, a cockpit amidships, and covered engine compartment aft. The motor installed is a 2-cylinder 8 to 10-h. p. machine with make-and-break ignition. A Paragon reverse gear with lever brought out through the bulkhead is part of the boat's equipment. Other boats shown are a 20-foot Special dory which has been on the market for several years, a 17-foot sailing dory, a 16-foot shallow draft lake and river boat, and a 14-foot bottom boat designed for use with outboard motors.

William H. Hand, Jr., of New Bedford, Mass., is exhibiting at both shows a duplicate of his boat Skelligallee, in connection with the display of the Loew-Victor Motor Co. This little craft is 20 feet overall, with an extreme beam of 4 feet 4 inches, and is equipped with a Model 30, 20 h.p. Loew-Victor motor, installed with full automobile control, including electric lighting and starting system. The boat is finely finished with mahogany trimmings and polished bronze hardware. She has a guaranteed speed of twenty-one miles an hour. In design, she is a Hand V-bottom of the most modern type, and the price complete, with full equipment, is \$1,200.

The Milwaukee Yacht & Boat Co., of Milwaukee, Wis., are showing at the Garden this year several of their X-Celo runabouts. One of the most recent of their boats is a 26-foot hydroplane built for Mr. Carl Fisher, which was designed to stand a little real weather now and again. The hull is divided in three compartments by two watertight bulkheads at each end of the engine compartment. Passenger accommodations are provided for three, beside the driver, whose seat is placed in a small cockpit at the stern. Here are placed all motor controls within easy reach of the helmsman.



24-foot runabout, shown by the Fulton Mfg. Co., and built by the Niagara Motor Boat Co. This boat is powered with a 20-28 h.p., 4-cyl., 4-cyl. high speed Fulton engine.

The Marine Motors Exhibit.

The Fulton Mfg. Co., of Erie, Pa., are showing at the Garden twelve models of their line of marine engines, the exhibit comprising a Diesel engine, a four-cylinder heavy-duty, two four-cylinder high-speeds, three light-weight engines of the Fulton Special two-cycle type, and five models in the self-sparking two-cycle line. The Fulton-Diesel is a four-cylinder machine fully equipped, which represents the latest developments in this type of engine, as worked out by this company. The heavy-duty engine has a bore and stroke of 5x6 inches, and develops 24 h. p. It is equipped with Bosch magneto, Detroit oiler, and Paragon reverse gear. In the high-speed line there are a 20-28 h. p. en bloc machine, which is installed in a Niagara runabout, and a 30-40 h. p. engine, equipped with Leece-Neville starting and lighting outfit. In the Fulton Special two-cycle light-weight line there are 4-5 h. p. and 6-8 h. p. single-cylinder machines, and a 12-16 h. p. double-cylinder. The Self-sparking engines, which operate without batteries, coils, timers, vibrators, etc., the horse power range exhibited is from 5 to 18 h. p. in one and two cylinders.

The Fairbanks Company, of Broome & Lafayette Sts., N. Y. C., are at the New York Show with nine models of their Victor engines, ranging from a 3 h. p. single-cylinder to a 15 h. p. double-cylinder. These models show a number of improvements over the 1914 type, one of these lying in the design of the cylinder head, which is now both air and water cooled. The piston rings are of a special peaned type, the connecting rod bearings are of armored babbit, equipped with laminated brass shims, and the main bearings are steel armored and pressed into the bearing housings. Carburetion is accomplished by two separate carbureters, a kerosene carbureter being located on the starboard side, attached to the bypass port leading from the engine base to the cylinder, as the fuel is carried direct from the bypass into the cylinder. The engines are equipped with make and break ignition. Lubrication is of the pressure feed type, with a large capacity reservoir having a direct feed to the crankpin, accomplished by delivering the oil to an oil ring attached to the crankshaft cheek. This ring in turn forces the lubricant to the bearing by centrifugal force.

An interesting exhibit at the New

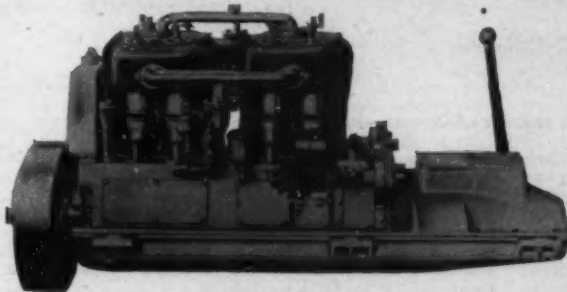
York Show is that of the Wisconsin Motor Mfg. Co., of Milwaukee, Wis., which shows ten types of beautifully finished motors—seven four-cylinders, two six-cylinders and an eight. A distinctive feature of these motors is their compactness and the completeness with which all parts are encased and protected. Liberal dimensions of all bearing surfaces with effective force feed lubrication, insures quiet and smooth-running motors. Type CM is a 25 h. p. 3 1/4 x 5-inch four cylinder machine, especially adapted for light runabouts. Type A is a 4 1/2 x 5 1/2-inch four-cylinder motor built for hard usage, with large bearings and a heavy crankshaft. Type DM is a powerful 60 h. p. four-cylinder machine, having a reverse gear especially built for it. Types QM, DRM, BM and EM are the other four-cylinder motors exhibited, and Types FM and LM are the sixes. The eight-cylinder machine is a powerful racer, developing 200 h. p. at 2,200 r.p.m. The cylinders measure 5.2 x 5 1/2, and the weight is 1,375 lbs.

The Loew-Victor Engine Co., of Chicago, Ill., occupy Blocks N and O at the New York Show, where they are represented by the Gasoline Engine Equipment Co., of New York City, and will also exhibit at Chicago. Their display consists of eight Loew-Victor engines and two boats equipped with these motors. One of the boats, a Hand V-bottom runabout, is in charge of Mr. Hand who is ready to explain its many interesting characteristics. The other boat shown is Enchantress, a 46-foot express cruiser designed by Bowes & Mower, which is equipped with a six-cylinder 190 h. p. Loew-Victor-Harbeck engine operating at 900 r.p.m. This boat is designed to maintain a steady speed of 25 m.p.h. The engine exhibit comprises the following motors: A model 10 single-cylinder 6 h. p. machine operating at 600 r.p.m.; a model 11 double-cylinder develop-

ing 12 h. p., and a model 12 three-cylinder rated at 18 h. p., these three engines having cylinder dimensions of 4 1/4 x 5 inches; a model 5 four-cylinder en bloc machine with 4 1/2 x 5-inch bore and stroke, developing 30 h. p. at 1,000 r.p.m.; a model 30 four-cylinder 20-h. p. runabout engine equipped with Leece-Neville electric starter; models 13 and 14, four and six-cylinder engines with identical cylinder dimensions, developing 40 and 60 h. p. respectively, and a model 32, six-cylinder machine of the type installed in Enchantress.

The S. M. Jones Co., of Toledo, O., are exhibiting their Ralaco engines at both shows. Their display consists of a two-cylinder 4x6-inch 10 h. p. motor, a four-cylinder 4x6-inch 20 h. p. motor of the same type, a six-cylinder 7x9-inch 75 h. p. machine, and, for the first time at New York, their latest model, the six-cylinder 5x7-inch 45 h. p. Ralaco. This engine is similar in design to all Ralaco models, with the exception that it is equipped with independent sets of spark plugs, and has two carbureters. Although rated at only 45 h. p., the makers state that it will pull better than 50 h. p. on the brake at 500 r.p.m.

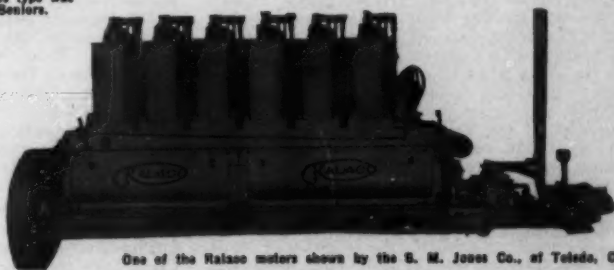
The Lamb Engine Co., of Clinton, Ia., are exhibiting at New York and Chicago nine Lamb engines, comprising the complete Lamb line with the exception of their two-cylinder 12-h. p. Model R. The engines shown are the four and six-cylinder high-speed light-weight Lambkin models, the four and six-cylinder medium-duty Rs developing 24 and 40 h. p. respectively; the two, four and six-cylinder medium-duty Model F type developing, respectively, 15, 30 and 45 h. p., and the Model H heavy-duty machines with four and six cylinders, rated at 40 and 60 h. p. All Lamb engines are fully equipped and carry such fittings as Bosch magnetos on all sizes of 24 h. p. and upward, Atwater Kent distributors, Hyde propellers, Kingston carbureters, unless other make is specified; Detroit lubricators, and the Lamb Company's own make of reverse gears. Model F differs from the regular R and H models in that it has the intake valves located directly over the pistons, in removable cages. This type of engine has powered many well-known racing cruisers. The new Elco-Lamb 18 h. p., three-cylinder motor is shown installed in the Elco 32-foot Cruisette.



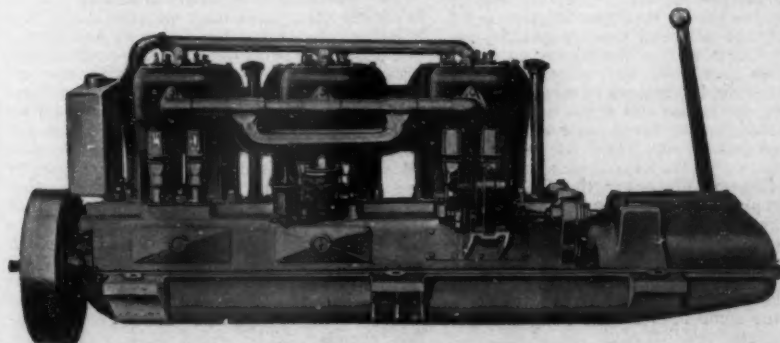
Type AM Wisconsin motor, 4-cylinder, 4 1/2 x 5 inch, 25 h.p. A motor similar to this type was used in the Dixie Seniors.



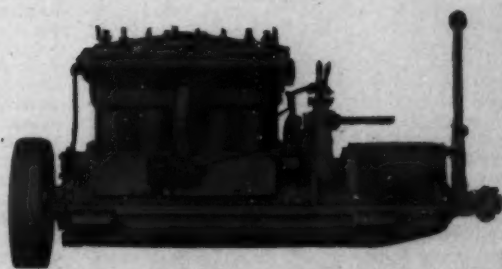
Lamb and Lambkin motors, two, four and six cylinders, 12 to 60 h.p.



One of the Ralaco motors shown by the S. M. Jones Co., of Toledo, O.

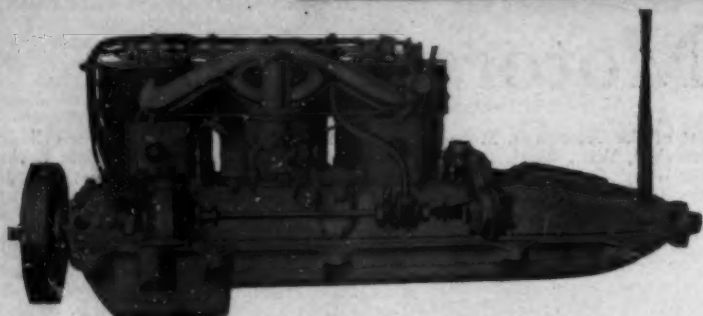


New six-cylinder, 4-cycle, Fulton motor especially designed for high speed runabouts.

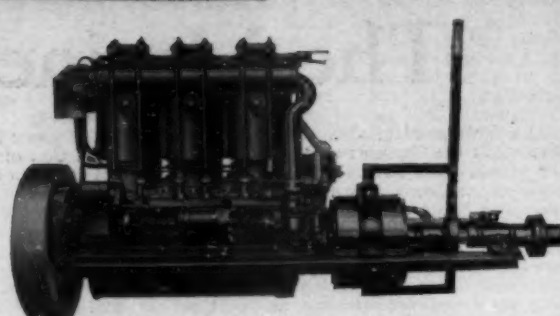


One of the several different models, shown by the Loew-Victor Engine Co. Other motors shown vary in power from 6 to 135 h.p.

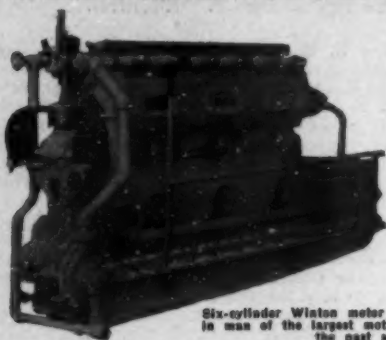
The Motor Boat Shows.



New enclosed Van Blerck motor having six cylinders developing 100 h.p. at about 1000 r.p.m.



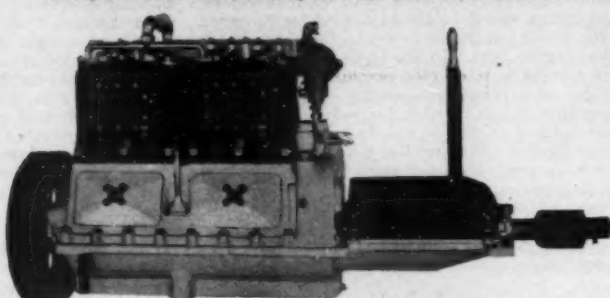
Three-cylinder Frisbie motor, shown by the Frisbie Motor Co., of Middletown, Conn.



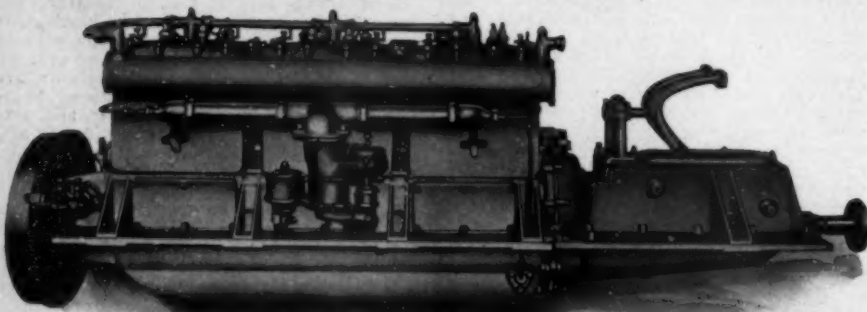
Six-cylinder Winton motor similar to those used in many of the largest motor yachts built during the past season.



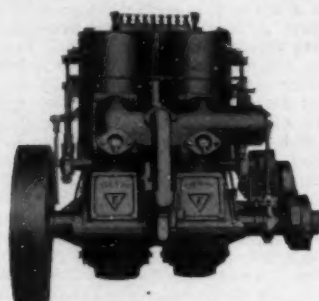
Evinrude outboard motor with several improved features.



New type of cruiser engine which is the latest addition to the Buffalo line. This motor runs at 40 to 50 h.p. at a speed of from 600 to 900 r.p.m.



New 100 h.p. 1915 Elco six-cylinder engine with detachable cylinder heads which develops 134 h.p. at 1,450 r.p.m.



One of the two-cylinder, 2-cycle Victor marine engines shown by the Fairbanks Co.

The Evinrude Motor Co., of Milwaukee, Wis., are on hand at the New York Show, and will be at Chicago exhibiting a new Evinrude outboard motor designed for commercial purposes, and also an entirely new feature, which has been added to their regular type of outboard motor. This improvement consists of an automatic reverse, which is stated to increase the flexibility of the motor 100 per cent. It increases safety in navigating difficult passages, and making landings, as it is claimed to be instantaneous and dependable in its action. A feature of its design is the standardization of its parts, whereby owners of earlier models may, for a few dollars, apply it to their machines and bring them up to date. Earlier features of the Evinrude, including the built-in reversible magneto and the Maxim exhaust silencer, are continued. The Commercial Evinrude, although selling at the reduced cost of \$60, also includes this magneto and the Maxim silencer.

The Winton Gas Engine and Mfg. Co., of Cleveland, O., are exhibiting at the Garden this year one of their 80 h. p. six-cylinder machines, a 125 h. p. six, and 3 and 5 k. w. generating sets. They have also a beautifully finished little yacht tender equipped with one of their 15 h. p. tender engines, with electric starting and lighting outfit. The 80 h. p. engine with cylinder dimensions of 6 1/2 x 9 inches develops its rated power at 550 maximum revolutions per minute; the 125 h. p. machine, weighing 10,000 lbs., has cylinders which measure 8 x 11 inches, and this engine is rated to develop its full power at 500 r.p.m. The tender engine turns over 1,200 r.p.m., its 3 x 4-inch cylinders delivering 15 h. p. at this speed.

The engine which attracts most attention in the section occupied by the Buffalo Gasoline Motor Co., at the New York Show is their new cruiser and large runabout motor, having a rating of 40-60 h. p., with bore and stroke of 5 1/2 x 7 inches. This engine is

shown in the smaller of the two sizes in which it is built, being a four-cylinder machine weighing 1,100 lbs. with aluminum base. Operating between 600 to 900 r.p.m., it can be equipped with either an iron or aluminum base, depending upon the requirements of the boat, and a number of changes in its equipment will be made, according to the speed at which it is to be operated. One feature which attracts attention is the device for filtering and cooling the oil before it is used. The lubrication is of the constant level and force-feed type. Very few gears are used in the construction of the engine with the result that it is practically noiseless and free from vibration. Despite the fact that it is compact, it has large bearing surfaces, and an unusually strong crankshaft. Six other models are shown, and the diminutive 5-6 h. p. tender motor contrasts strangely with the monstrous 10 x 12-inch 85-100 h. p. heavy-duty motor.

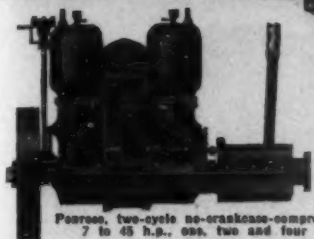
The Frisbie Motor Co., of Middletown, Conn., are showing at New York a number of Frisbie marine motors. One of these is a small single-cylinder machine developing 3-5 h. p. which has achieved great popularity on the Pacific Coast and in the South on small boats. Then they have one of each size of their double-cylinder motors of new 1915 design, having the intake and exhaust manifolds water-jacketed, an improved water-circulation pump, large valves, etc. One of the three-cylinder motors of the type which drove Dr. Swayne's Eugenia first over the line in the Record Trophy race last summer, is on display, no changes in design or equipment over last year's model having been found necessary. Another motor shown is their four-cylinder 40 h. p. 1915 model, having 6-inch bore by the same length of stroke, while a motor of the same model but having six cylinders completes the list.

The products of the Van Blerck Motor Co., of Monroe, Mich., are well represented

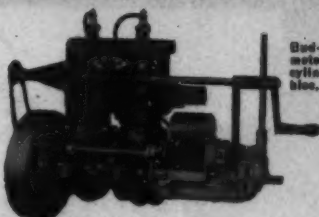
at both shows. At New York this company is exhibiting, through its eastern representatives, The Gasoline Engine Equipment Co., of New York City, its complete line of 1915 four-cycle motors, consisting of types E, EE and E-Special. All these motors have the same cylinder dimensions—5 1/2 x 6 inches—and range in size from four to eight cylinders. Model E is the high-speed engine more particularly adapted to runabout and express cruiser work. It runs normally at 1,200 r.p.m., and at that speed develops 20 h. p. per cylinder. The E-Special is the racing engine, differing from the E only in timing and compression, suiting it to the higher rotative speeds necessary when racing. Model EE is the medium-duty engine of the Van Blerck line, designed to run at about 650 to 800 r.p.m., and is best suited to the larger and heavier types of runabouts and cruisers. Each of these models is built in four, six and eight cylinders, and the horsepower is determined solely by the speed at which they are run.

The exhibit of the Penrose Motor Co., of Woodbury, N. J., consists of one Model E 4 h. p. Penrose motor, complete with equipment; one Model F, two-cylinder 8 h. p. unit power plant, with reverse gear and magneto and rotary pump built in, and in addition to these a Model E in half-section and a complete set of parts which go into the motor. This motor is one which has no crankcase compression, taking the gas directly into the lower part of the cylinder, and having a precompression chamber, which has no other opening than the intake port. The charge is compressed on the downward stroke and trapped in the hollow piston to a pressure of about 8 lbs. At the bottom of the stroke the inlet port is opened by the piston, and the charge transferred through a short passage to the combustion chamber. The wrist pin is rigidly fastened in the piston, and passes through a slot in the cylinder wall at a point where there is no compression, to a guide at its outer end.

The Motor Boat Shows.



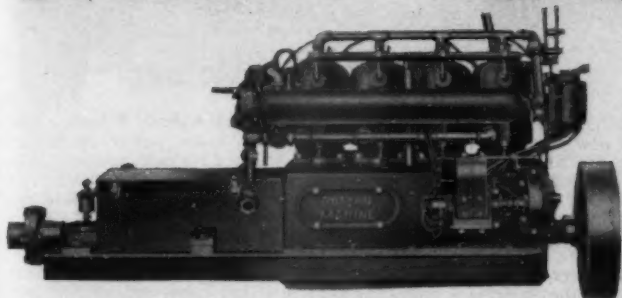
Pontiac, two-cycle no-crankcase-compression motors. 7 to 45 h.p., one, two and four cylinders.



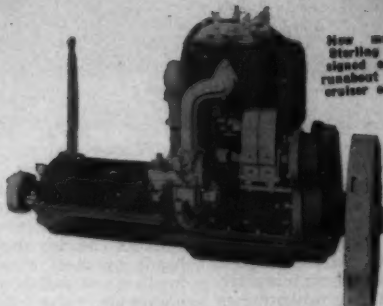
Bud-E. marine motor, two cylinders on-bloc, 5 and 15 h.p.



New medium duty Sterling motor designed especially for runabout and light cruiser service.



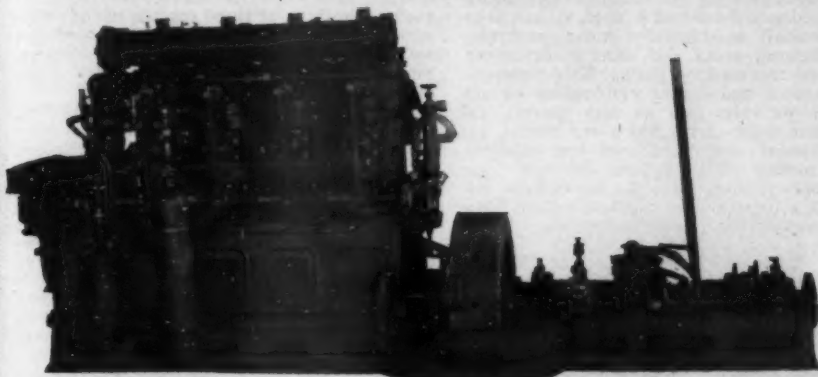
Four-cylinder, 4 cycle Doman engine noted for steady and consistent work.



1915 Two-cylinder Peerless motor.



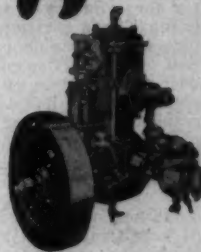
Willco outboard motor, manufactured by the E. J. Willis & Co., New York City.



Nitro Diesel engine with reverse gear attached, suitable for motor yacht use.



End view of one of the Palmer Bros. 4-cycle marine engines.



American Boy, single-cylinder, 2 h.p., weight, 30 pounds without gear, manufactured by Bruns, Kimball Co.

The H. C. Doman Co., of Oshkosh, Wis., are exhibiting at the New York Show in their old space, Section H, and will also be at Chicago. An engine of each of the different types of this concern's manufacture is on display. These include the following: A four-cylinder 20 h. p. medium-duty engine, a two-cylinder 10 h. p. medium-duty, and a six-cylinder 45-50 h. p. high-speed, equipped with electric starting and lighting outfit, these three motors having bore and stroke of 5x6 inches. Then there is the new Doman Junior, a four-cylinder four-cycle, 8-10 h. p. high-speed tender engine, with bore and stroke measuring 2½x3 inches, developing its power at 1,200 to 1,800 r. p. m. This engine, which is equipped with rear starter, high tension magneto, Paragon reverse gear, and is sold at a reasonable price, is intended not only for yacht tenders, but for small light runabouts under twenty-five feet. A fifth model exhibited, is a heavy-duty 6x8-inch four-cylinder engine, developing 32 h. p.

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Bruns Kimball & Co., of 115 Liberty St., New York City, who are agents for Sterling, Eagle and Kermath motors, are showing at New York their 2 h.p. 2-cycle single-cylinder American Boy marine motor. This motor which has a bore and stroke of three inches, is furnished with full outfit for \$50, and is guaranteed for a year. The price includes a Schebler carburetor of the proper size, five feet of bronze shafting, a two-bladed 12-inch bronze propeller, bronze stuffing box, six dry cells, spark coil, insulated wire, switch and muffler. The makers state that this engine is sold on approval, the understanding being that if it is not satisfactory, it may be returned at the maker's expense.

* * *

The Carlyle Johnson Machine Co., of Manchester, Conn., are at the shows in New York and Chicago, exhibiting their 5 h. p. and 15 h. p. Bud E marine motors, and their Johnson machine reverse gears. The smaller motor, which is a 5 h. p. unit power plant, is

especially adapted to use with light yacht tenders, motor canoes and light speed boats. It is a two-cycle three-port machine, having two cylinders and 3-inch bore and stroke. The cylinders are cast in one block, and with the optional aluminum crank case and reverse gear housing the weight is kept down to 100 pounds. A Bosch magneto, and a Planhard carburetor are supplied, and the integral reverse gear is a No. 0 Johnson, alloy steel design, with a ball bearing on the upper end. The new Moel F Johnson reverse gear, which is one of the features of this firm's exhibit, is an enclosed type of ball bearing design. It is shown in three sizes, 5, 10 and 30 h. p., and the chief feature of its construction is the double type of Johnson friction clutch employed. The gears are shown as demonstrating models.

* * *

Palmer Bros., of Cos Cob, Conn., are exhibiting at New York a full line of their two and four-cycle motors, comprising a total of thirty-two motors. Of these there are fifteen cations: Class NL consists of four motors in one to four cylinders, having bore and stroke of 4½ inches; Type NR comprises the same number of motors, with cylinder dimensions of 5x6 inches; Model F, one, two, three, and four-cylinder motors, have 6½x8-inch cylinder measurements, and Type NK motors are two, three, and four-cylinder heavy-duty power plants, with bore and stroke of 7½x10 inches. Thus, Palmer four-cycle engines cover very closely the range of power up to 50 h. p., while their two-cycle machines, numbering fifteen models in all, offer a choice of motors in one, two, and three-cylinders, having rated powers of 2, 2½, 3½ (two models), 4 (two models), 5, 5½, 6 (two models), 7½, 8 (two models), 10, 11, 12, and 15. Palmer two-cycle motors are all of the three-port type, with the exception of Models C, D, and E, and are all constructed to rotate in either direction.

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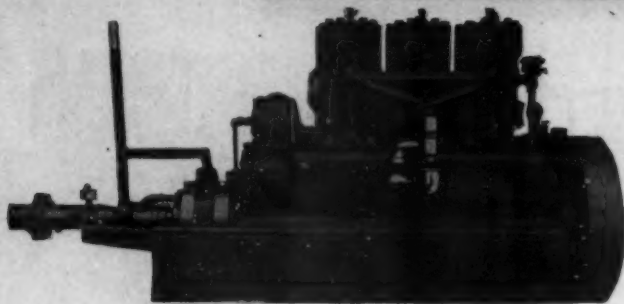
The Sterling Engine Co., of Buffalo, have at the New York Show a complete line of their 1915 Sterling engines, including several

new models, which have never been seen before. One of these is a new eight-cylinder machine for express runabouts and cruisers, and another is a two-cylinder engine developing 12 h. p. at 400 r. p. m., which is designed for work boat owners. The most interesting of the exhibits, however, is a six-cylinder 5½ x 8-inch engine, which delivers 50 h.p. at 400 r. p. m., and which has been built with a view only to the best in refinement and efficiency. Every moving part is enclosed, and the constructional features make it an extremely compact job. It has cylinders of the L-head type cast in pairs, and the castings have rectangular jackets, which are bolted to the base by concealed bolts set up from the inside. This motor is considered by the makers one of the handsomest jobs ever turned out, and it is stated to be extremely clean, quiet, and vibrationless. It will be sold for \$2,750, equipped with electric starter, and regular Sterling equipment. The Sterling Co. will also exhibit at Chicago.

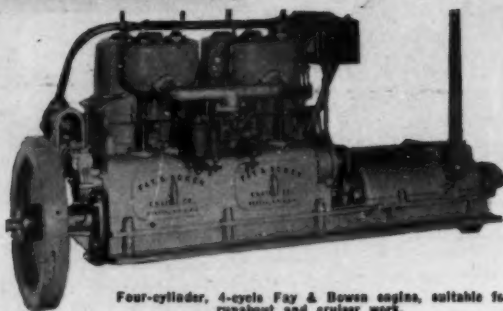
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The E. J. Willis Co., of 85 Chambers St., New York City, have booths at both shows, where they are exhibiting a great variety of their marine specialties. These include "Wireless" searchlights, spark and throttle controls, underwater exhausts, running lights, etc., of standard construction, but the chief item of their exhibit is the Wilco outboard motor, which is sold for \$49.95, without magneto, and for \$59.95 with magneto. This detachable motor develops its 2 h. p. at 900 r. p. m., and is stated to give the average rowboat a speed of 8½ m. p. h. The cylinder is cast from close-grain grey iron, and is rough-bored and ground smooth, giving a straight, accurate cylinder bore. The piston is made of the same material, while the rings are made eccentric and cast individually, retaining the strength given them when the iron is chilled in casting. The crankshaft is made from 35 to 40 point carbon steel, and the I-beam connecting rod is of special wear-resisting phosphor bronze. The timer is located under the flywheel, convenient to the operator.

The Motor Boat Shows.



Three-cylinder, 4-cycle Lathrop engine.



Four-cylinder, 4-cycle Fay & Bowen engine, suitable for runabout and cruiser work.

The New London Ship & Engine Co., of Groton, Conn., are showing at New York in Block G on the main floor one of their 100-120-h. p. four-cylinder four-cycle single-acting Diesel engines. This engine is simple and rugged in construction and is designed to withstand severe and continuous duty. The cylinders and heads are cast in one piece which permits of their removal and replacement, if necessary, without any adjustments. The engine is started by means of compressed air with starting attachment on two cylinders. A two-stage air compressor is mounted on the forward end of the engine and is driven by the main crankshaft. The circulating water for the cylinders is supplied by either a centrifugal or a plunger pump. A notable feature of this engine is the system of lubrication. The oil is supplied from the pump to a duct in the bottom of the bed plate, whence it passes through holes in the crankshaft to the crankpins, and thence through the connecting rods to the wrist-pins. As the engine base is enclosed the oil finds its way to the pump to be used again. A mechanical oiler takes care of the cylinders. This company is also exhibiting a model of one of the latest types of submarines built by the Electric Boat Co. With two exceptions, all U. S. submarines are powered with Nlsec Diesels.

Of chief interest in the exhibit of the Wolverine Motor Works, of Bridgeport, Conn., at the New York Show, is their new 175-200 h. p. motor, which is rated to develop 175 h. p. at 300 r. p. m., operating on suction producer gas, and 200 h. p. at the same speed on oil fuel. This motor is a six-cylinder, 11 x 15-inch machine, weighing between 18,000 and 20,000 pounds. There is a bearing between each two throws of the crankshaft, each bearing being 4 1/4 inches in diameter. The lower base of the machine is made in one piece, with the extension for the reverse gear bolted on to it. The portion of the engine supporting the cylinders is made in two parts, each carrying three cylinders. This is made so that it can be easily dismantled for shipping. The crankshaft is likewise made in two pieces, the ends telescoping into each other, and being held by six 1 1/4-inch nickel steel bolts. This telescopic feature shortens the engine considerably. The total length of this engine from the forward end of the crankshaft to the centre of the coupling at the rear of the reverse gear, is 180 inches, so that it will be seen that the design is compact. Ignition is of the Wolverine make and break, low tension type, using wet batteries for starting and the Sumter AP magneto, gear driven, for running.

The Jager Engine Co., of Boston, Mass., are exhibiting in Block A at the New York Show seven different engines, each representing a distinct line of service for which these engines are now building. The largest of the engines shown is a new design, Type P, having six 6 3/4 x 9 3/4-inch cylinders, and a rated

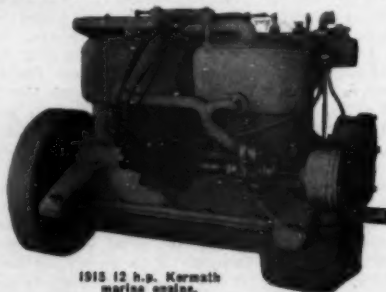
power of 100 at 650 r.p.m. One of the most interesting features of this new engine is the valve arrangement. These are of the overhead type, with four in each cylinder—two inlet and two exhaust—working in steel removable cages screwed into the water-jacketed cylinder heads, the valves having cast-iron heads on steel stems. They are 2 3/4 inches in diameter and are used in pairs to develop maximum valve opening and the least risk of warping under the heat of high-speed work. The valve-operating mechanism is new in design, having a short rocker shaft driven from the camshaft to the valve stems, with very large bearing areas and short direct movements of the working parts. This results in quiet action, and makes overhauling of any part of the valve gear an easy matter. All valve and pump drive gears are helical, cut from special alloy steel and are noiseless. Other models shown include the new Type FB, four-cylinder, Type L, heavy-duty six, Type O, a four-cylinder runabout motor, Type G, a two-cylinder tender engine, etc.

The Lathrop Engine Co., of Mystic, Conn., are exhibiting at the Garden, through their representatives, the Verrier-Eddy Co., of New York City, several representative models of their two-cycle line, and are also showing engines of the four-cycle type recently introduced by them. In the four-cycle line they manufacture three engines, rating 14-16, 21-24, and 28-32 h. p., these motors having two, three and four cylinders, respectively, with cylinder

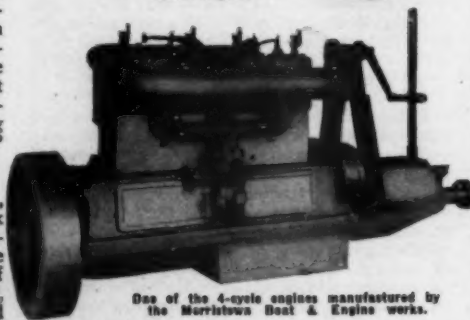
dimensions of 5 1/4-inch bore by 8 inch stroke. They develop their rated power at 350-400 r.p.m., and are designed for quiet running, reliability and durability under continuous service, with the best fuel economy. The T-head cylinders are cast separately, and have two plates on the waterjacket for cleaning and draining. The crankcase is made of two separate castings, split on the center line of the crankshaft, and the upper half has large separate handhole plates on both sides, through which inspection and adjustment of the bearings may be easily made. Features of these engines include Paragon reverse gear mounted on extended side rails, Schebler carbureter, cam shaft compression release for starting, mechanical oiler, etc.

The Morristown Boat & Engine Works, of Morristown, N. Y., are exhibiting at New York four motors, comprising a 4-cylinder, Type F, four-cycle motor, a 3-cylinder 15 h. p. two-cycle, with reverse gear; a 3-cylinder two-cycle 6 h. p., also with reverse gear, and a 2-cylinder two-cycle 4 h. p., without gear. The one of this quartette belonging to the four-cycle type, is a unit power plant, developing 20-25 h. p. at 850 r. p. m. The cylinders, which are cast in pairs, measure 4 1/4 x 5 inches, and their sides are carried out to form enclosures, which are covered with aluminum plates to prevent throwing of oil and to insure quiet operation. The 4 h. p. two-cycle is a compact little outfit, weighing only 100 pounds. The 6 h. p. machine, which is a 3-cylinder engine with the same cylinder dimensions as the 2-cylinder—3 x 3 inches—is shown coupled up to a Joe's reverse gear. The 15 h. p. 3-cylinder motor has cylinder dimensions of 4 x 4 inches. It is equipped with mechanical force feed oiler to all bearings, and with Atwater Kent ignition, including coil, timer, and dry batteries.

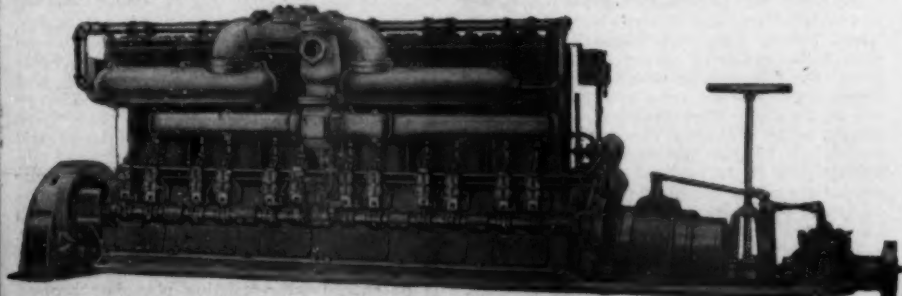
The Kermath Mfg. Co., of Detroit, Mich., are exhibiting at the Garden and Coliseum models of their new 20 h. p. "Vanadium," and their 12 h. p. machine. The new motor, which naturally attracts the most attention, embodies in its design the time-tried features of the smaller engine, with nothing radical in the general design, and with its monobloc cylinder casting presents a most compact, business-like appearance. This new motor carries a heavy flywheel, 18 inches in diameter, to produce steady running in cruising work at a speed of between 500 and 600 r. p. m., turning a propeller of 20 to 24-inch diameter. This new model and the 1915 12 h.p. may be furnished as unit power plants where desired, a Paragon reverse gear being set on an extension of the engine base. The extended base is made of angle steel, which, before being used, is placed on a surface grinder and ground perfectly smooth. With this construction the makers state that any part of the unit plant may be removed and put back in place without the necessity of realigning. A notable feature of the new engine is the use of chrome vanadium steel for the drop forgings, constituting the crankshaft and connecting rods.



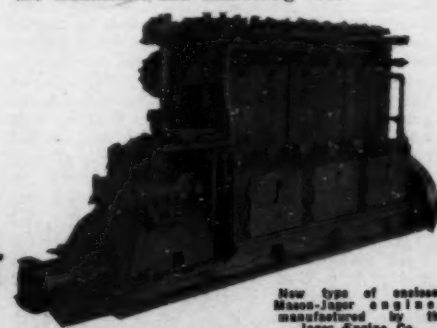
1915 12 h.p. Kermath marine engine.



One of the 4-cycle engines manufactured by the Morristown Boat & Engine Works.

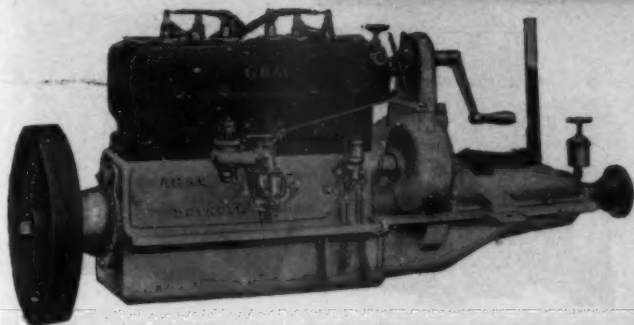


Heavy-duty Wolverine motor, developing 200 h.p. at 300 r.p.m.

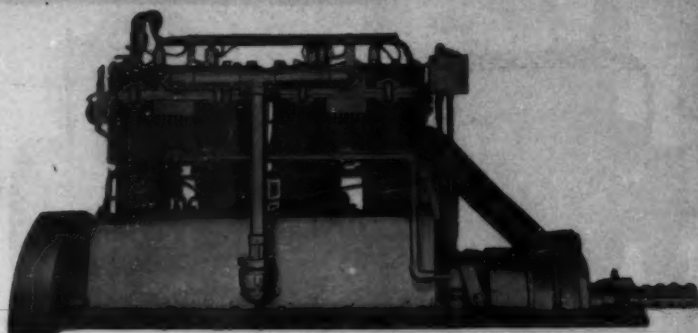


New type of enclosed Mono-Jager engine, manufactured by the Jager Engine Co.

The Motor Boat Shows.



Four-cylinder, 4-cycle Gray marine engine, manufactured by the Gray Motor Co.



1915 model of the 40-50 h.p. 20th Century marine motor.

The Scripps Motor Co., of Detroit, Mich., are on hand at the Garden with an especially interesting exhibit. They are showing, in addition to their Models K, L, A, and the 7 h. p. Midget, two models of the new Series B enclosed power plants. These two models, known as Series B-4 and B-6, are so enclosed that with the exception of the revolving shaft at the gear end, and small magneto shaft on the starboard side, no moving part can be seen—even the flywheel running enclosed in oil. The reverse gear case is bolted on to the rear end of the crankcase proper, insuring rigidity, and eliminating any possibility of misalignment through distortion of the engine base. Large handhole plates are provided in the crankcase, and the reverse gear is accessible through large inspection plates. The cylinders, which measure $4\frac{1}{2} \times 5$ inches, are cast two in bloc, with open-head water jackets. A single casting, which serves the double function of carrying off the circulating water and providing a complete enclosure for the ignition wires, covers the jacket openings. The wires are led from the Bosch magneto through a brass conduit, which is carried to a cored passage in the water jacket cap, and emerge directly in front of their respective spark plugs. This motor is built in both medium-duty and semi-speed types, developing 18 h.p. at 600, and 30 h.p. at 1,000 r.p.m.

* * *

The full line of the Gray Motor Co., of Detroit, Mich., may be found in the usual place at the New York Show—Block F—and this concern will also exhibit at Chicago. The Baby Grand, which made its debut last year, is one of the features of the two-cycle regular line, and the Gray Gearless outboard motor occupies a niche all its own among the two-cycle engines. The four-cycle line includes the four and six-cylinder Model C engines shown last year, and then there is the Model D four-cylinder 16-20 h. p. engine which has not been shown before. This model, whose cylinder dimensions are $3\frac{3}{4} \times 4\frac{1}{2}$ inches, can be had with either iron or aluminum base, as a unit power plant or as a bare engine, while magneto or battery ignition, elevated rear starter or air or electric starter are all features optional with the purchaser. There are no gears used in this motor, the silent chain drive in an oil-tight housing being a feature which merits particular attention. Bearings are of liberal size, and other constructional features include one-piece camshaft, enclosed valve tappets, valves of the mushroom type, electrically welded, etc. A two-cylinder 8-10 h. p. heavy-duty motor of the same specifications is also shown.

The Standard Co., of Torrington, Conn., are exhibiting their Eagle two-cycle engines at both shows. The center of attraction this year in the Eagle booth is the new Model L, a single-cylinder machine with $4\frac{1}{4}$ -inch bore and 4-inch stroke which delivers $3\frac{1}{4}$ h. p. at 450 r.p.m. and 5 h. p. at 800 r.p.m. and weighs but 165 pounds. It is designed for use on fishing boats requiring low-powered engines, and can be used either as a heavy or medium-duty engine, depending upon the size wheel attached. It can also be operated as either a two or three-port engine, and with either make-and-break or jump-spark ignition. When

desired, a Sumter waterproof gear-driven magneto may be installed, thus eliminating the use of batteries, even for starting. A feature of this machine is its adaptability to either gasoline or kerosene. The complete Eagle line consists of 19 models in one, two, three and four cylinders, several models of each type of which are displayed. In addition to the engine display, there is a duplicate of Flying Eagle, the speed boat which made a name for herself on the Jersey coast last summer. This boat is 16 feet in length by 4 feet 3 inches beam, is designed to seat four passengers, and with a Model 2 o Eagle unit power plant is guaranteed to make 22 m.p.h.

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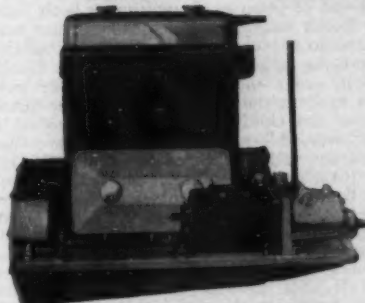
The New York Yacht, Launch & Engine Co., of Morris Heights, N. Y., are exhibiting at New York the 1915 model of their four-cylinder $6\frac{1}{2} \times 8\frac{1}{2}$ 40-50 h. p. Twentieth Century marine motor. The general plan of this motor is the same as has been used in the past, with the addition of a number of refinements and improvements. The new model has all valves enclosed, the reverse gear is covered, and the gears of the reverse gear and timing shaft are helical instead of spur and bevel, as have been used in the past. The motor is built with a solid crank base having a web between each two throws of the crankshaft, in which is housed a phosphor bronze journal bearing, there being five main bearings in the motor. It is equipped with Kingston carburetor, force feed lubrication to all cylinders, and gravity feed to all other bearings, and the ignition system consists of a Bosch K type magneto. The motor uses a two inch bronze propeller shaft, and swings a three bladed 32x40-inch Hyde wheel, at 425 r. p. m.

The Murray & Tregurtha Co., of South Boston, Mass., are exhibiting two of their engines at the New York Show. One of these, a four-cylinder machine, developing 30-40 h. p. is of a type which is built in all sizes from 4 to 60 h. p., and including two, three and four cylinders. The other motor, which is shown in the accompanying photograph, represents the type which this company builds in eight sizes in four, five and six cylinders in horsepower ranging from 60 to 200. These engines are built with air starting device and can also be furnished with air reverse. In addition to the models enumerated, Murray & Tregurtha build two sizes of high-speed engines and two electric generator sets. There is also on display a series of photographs of recent yachts which this company has built, as well as photographs of Viper IV and V, boats for which these people are the sole licensees in the United States.

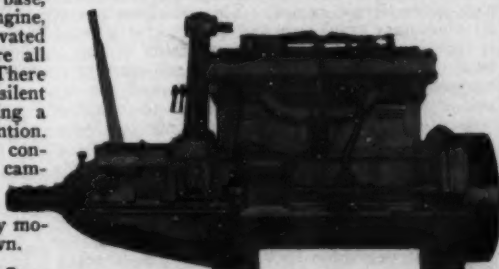
The Ferro Machine & Fdry. Co., of Cleveland, are showing at New York and have de-



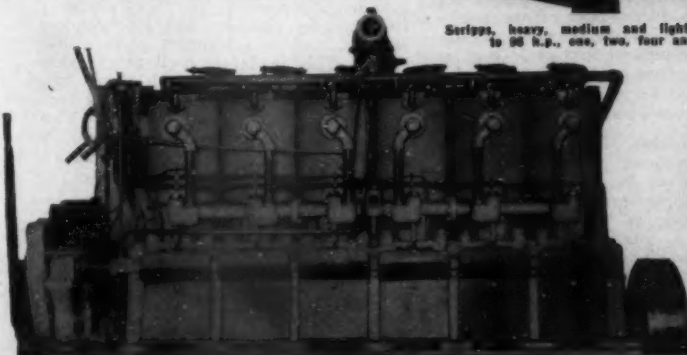
Single cylinder Eagle engine, one of the complete line of 2-cycle motors shown by the Standard Co., of Torrington, Conn.



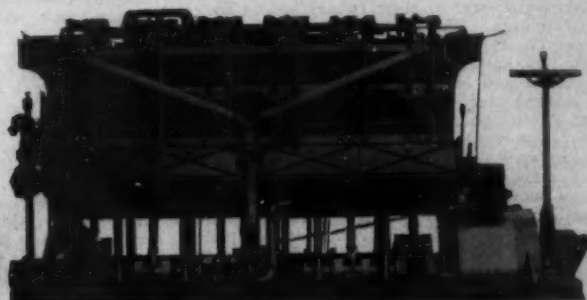
Enclosed, 4-cycle, Ferro engine shown for the first time at the New York Show.



Scripps, heavy, medium and light weight motors, 4½ to 90 h.p., one, two, four and six cylinders.



Six-cylinder, 100 h.p. Speedway engine, built by the Gas Eng. & Power Co. & C. L. Seabury, Conn.

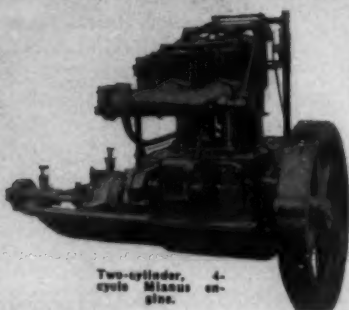


Heavy-duty Murray & Tregurtha engine built for heavy boats and cruisers.

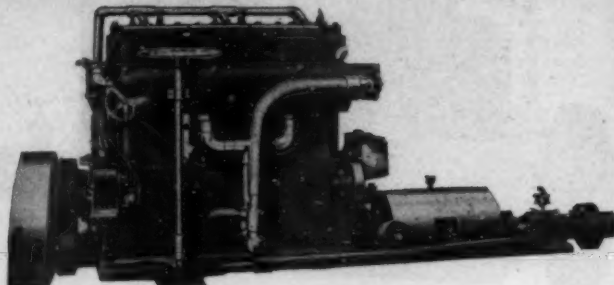
The Motor Boat Shows.



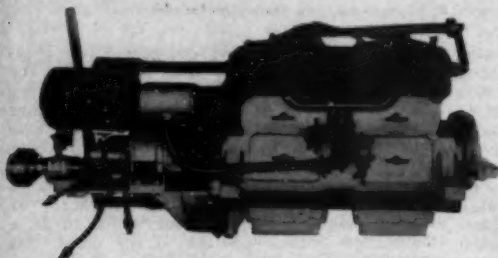
Red Wing motors, two and four-cycle, one, two and four cylinders, 3 to 36 h.p.



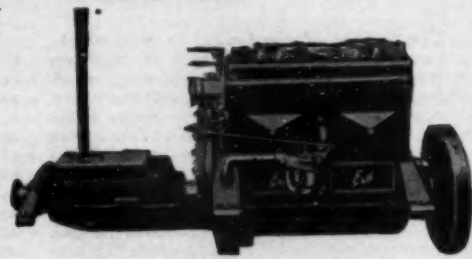
Two-cylinder, four-cycle Mianus engine.



One of three new sizes of Bridgeport 4-cycle engines rated at 24, 36 and 48 h.p. respectively.



Regal four-cycle motors, light, medium and heavy-duty, 3 to 45 h.p., one, two and four cylinders.



Erd two and four-cycle motors, 3½ to 60 h.p., one, two, three, four and six cylinders.

voted a great deal of pains to make the setting for their exhibit as well as their exhibit itself, attractive. In addition to a number of their well-known two-cycle motors they are showing the new Ferro four-cycle motor which has an unusual number of special features. This new motor embodies points which make a new and practical combination, and lack of noise, accessibility and safety for the operator are among the chief claims made for it. The Ferro outboard motor and the ease with which it is attached to the stern of rowboat or skiff are shown, and this portable machine is also used to demonstrate the new type of well the manufacturers have worked out for the benefit of canoe owners. Literature telling how this well may be installed in a canoe is distributed, and it is pointed out that this installation can be effected for a cost not exceeding \$5.

The Bridgeport Motor Co., of Bridgeport, Conn., are exhibiting at the New York Show their new four-cycle motor. The Bridgeport company have been slow in entering the four-cycle field because they were determined not to bring out this type of motor until they could produce one which would occupy the same position among the four-cycle machines which their two-cycle motors have long held in that field. The motor is distinctive in that every part except the connecting rods and pistons is on the exterior, yet completely covered. The design is such that the camshaft, valve mechanism and all gears can be exposed immediately, and removed in a few minutes' time if necessary. The large hand-hole plates in the sub-base permit the connecting rod bearings and main bearing journals to be removed quickly for adjustment or repairs without disturbing other parts. The cylinders are cast separately and their dimensions are 7½x9 inches. The motor is made in two, three and four-cylinder sizes, rating respectively 24, 36 and 48 h. p. A representative number of two-cycle motors is also exhibited.

The exhibition of the Erd Motor Co., of Saginaw, Mich., at the Chicago Show will comprise several of their two-cycle and four-cycle motors. These motors are made in the two-cycle type in one, two, three and six cylinders, having horsepower ratings from 3½ up to 60, and in the four-cycle line there are a two-cylinder 12-h. p., a three-cylinder 18, and a four-cylinder 24, having bore and stroke of 5x6 inches, and a four-cylinder machine rating 25 h. p., with cylinder dimensions of 4x5 inches. This last is an en bloc machine manufactured in two types for high and medium speed. The high-speed type has crankcase, base, clutch cover, handhole plates and water cover of aluminum and weighs 190 pounds less than the other type which has these parts in iron. Features claimed for this motor are easy starting, perfect control, freedom from vibration, economical runnings, etc.

The Mianus Motor Works, of Stamford, Conn., are exhibiting at New York some eight models of their 1915 two-cycle engines, covering a range of horsepower from 3 to 20, in one and two cylinders, all with make-and-break ignition. In addition to these, they are showing their 1915 two-cylinder 16-h. p. and 32-h. p. four-cylinder four-cycle motors. While adhering firmly to their belief in the two-cycle principle, the Mianus Company has realized that there is a demand for motors having more flexibility and ease of control than is possessed by the two-cycle, and so have issued these two models to meet that demand. These new motors are fitted with either make-and-break or jump-spark ignition or both, fitted with Bosch magneto. Much thought has been devoted to the cooling system, the circulating pump being larger and stronger than is usually used in order to fully cool the motor even when used in the warm waters of the south. One of the chief features of the motors is their accessibility. The cylinders are cast separately, and so each can be removed without disturbing the others, while the pistons may be taken out without removing the cylinders. The camshaft and even the crankshaft may be taken out without removing the reciprocating parts.

Prominent in the exhibition of the Regal Gasoline Engine Co., of Coldwater, Mich., at the Chicago Show will be the new 32 h. p. high-speed Regal motor. This machine has an aluminum crankcase and the reverse gear is contained in an aluminum extension of the base. The engine is fitted with self-starting equipment, and the electric motor and generator are mounted on extensions to either side of the reverse gear. Not only is this motor a unit power plant in the sense that the reverse gear is integral with it, but the muffler is also part of the unit. This muffler is water cooled and has been designed especially for use with the Regal. It is highly efficient, both in silencing the exhaust and in its almost negligible back pressure. A Bosch Dz-4 dual magneto forms part of the equipment of this engine. Other models of this company's line of fourteen four-cycle engines in one, two and four cylinders, will also be shown.

The Peerless Marine Motor Co., of Buffalo, N. Y., are showing at New York and Chicago representative models of their comprehensive line of marine motors. One of the most interesting of these is the four-cylinder 40-50 h. p. machine which recently made its appearance. This engine has cylinder dimensions of 5½x7 inches, and develops more power than any previous Peerless model. Although similar in appearance to the older types, the necessary changes have been made to adapt it to the class of service for which it is intended. The crankshaft is very heavy, and has five main bearings. The connecting rods are of steel and are fitted with extremely

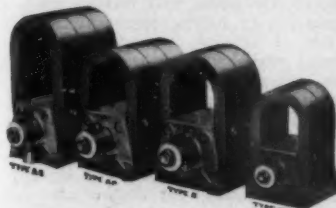
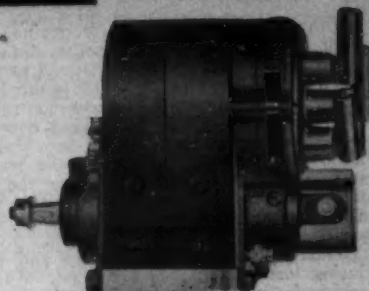
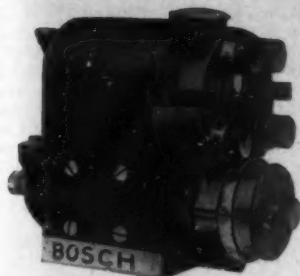
large bearings on the lower end, these bearings being of die-cast babbitt, and interchangeable with the main bearings. The cylinders are cast in pairs and are of the T-head design with ample water jackets throughout, the water circulation being maintained by a plunger pump. This model is also made in two cylinders in which size it develops 20-24 h. p.

Although exhibiting other models as well, the new Model H Thorobred will be the center of interest in the booth of the Red Wing Motor Co., of Red Wing, Minn., at the Chicago Show. This new motor is the result of several months' experimenting and tests, and the makers believe that it is destined to figure conspicuously in this season's races. It is a four-cylinder four-cycle en bloc type of 3½x5¼-inch stroke, valve-in-the-head design. The intake and exhaust manifolds are cast inside the cylinder head, eliminating piping and producing a compact, sightly machine. This design also increases efficiency as the incoming gases are delivered to the cylinders in a pre-heated condition. The combined cylinder and crankcase casting is of fine grain gray iron. The cylinder head, being removable, permits the most accurate machining of the combustion chambers and facilitates ready access to the valves for re-grinding when necessary. The lubricating system is a combination of pressure, gravity and splash, and is automatic and positive, supplying the proper quantity of oil at all speeds. The motor is rated at 25 h. p. and is stated actually to develop 40 h. p. at 1,600 r.p.m., while it may be speeded up to 2,000 r.p.m.

The Gillespie-Boynton Co., of New York City, are showing at the Garden several models of the Watertown motor. These motors which were formerly made by the Watertown Motor Co., of Watertown, N. Y., are of the two-cycle type. They are shown in one, two, three and four cylinders, the two, three and four being of similar design with cylinder dimensions of 3½x5 inches. The four-cylinder machine has its cylinders cast en bloc, and is a compact business-like machine. This model as well as the three-cylinder may be equipped with Bosch magneto, but the other engines are regularly furnished with battery jump-spark ignition. The four is equipped with Planhard carbureter, Maxim silencer, and Joe's reverse gear. There is also a 4½ h. p. kerosene stationary engine for farm use shown.

The August Metz Iron Foundry and Machine Company, of New York, are showing a number of their Metz & Weiss marine engines at the New York Show, a 6 h. p., horizontal engine and an M. & W. reverse gear in section. Of the marine engines the largest is a 100 h. p., direct reversible oil-burning motor. Then there are a 22 h. p., three-cylinder motor, a 10 h. p., two-cylinder motor, and a 3½ h. p., single cylinder machine, fitted with reverse gear.

The Motor Boat Shows.



The Sumter Electric Co., exhibit a full line of high and low tension magnetos, for make and break jump spark ignition.



Searchlight shown by A. S. Campbell.



Motor boat stern light, operating on one dry cell shown by the Sutfitt Madsen Co.



Part of the display of ship china, shown by Higgins & Seiter.

The exhibit of the Bosch Magneto Co., of New York, at the Garden will occupy more space than they have ever before had. Among the interesting things in the exhibit are Sterling motors equipped with the Bosch lighting system, the Bosch starting system, the Rushmore lighting system and the Rushmore starting system, and then, of course, there are complete displays of all the Bosch ignition systems which are applicable for motor boat use. The Bosch-Rushmore starter, which is shown in the accompanying illustration, operates by the motor being brought into engagement with the teeth on the periphery of the engine flywheel by an automatic end throw arrangement which causes the motor gear to mesh directly with that of the flywheel, there being no engagement except at the moment of starting. Most of the Bosch magnetos displayed are arranged with hand-driving wheel so that the visitor may see for himself the quality of spark delivered.

The David B. Crockett Co., of Bridgeport, Conn., are at hand at the New York Show, with an exhibit in Section 26, in the balcony. Here they are displaying their leading varnishes, the most prominent of these being their Spar Composition, No. 1 Preservative and Waterproof Floor Finish. This floor finish, as its name implies, is a floor varnish which is waterproof. It is elastic and durable, is adapted for cabin floors, and will not show heel marks. Hot water and soap will not affect the lustre in any way. No. 1 Preservative is a perfect interior finish, and will not crack, blister or scale, while it can be washed with hot or cold water and soap without injury. Spar Composition is stated by the makers to be invaluable for all exterior marine work. This varnish is salt and fresh waterproof, will not turn white, and possesses great durability.

The Sunderman Safety Carbureter Co., of Newburgh, N. Y., who have a New York office and service station at 411 West 55th St., are exhibiting their carbureter at the New York Show. This carbureter is described as one which will not backfire, because of a safety governor-valve, which automatically prevents the flame from passing through the carbureter. It is also stated that by reason of its scientific construction it produces a uniform vacuum, and regular action under varying speeds, by positively gasifying the fuel, and, therefore, prevents overloading and overheating, while it is claimed to be unaffected by altitude, as the auxiliary air valve is self-adjusting. All parts of the carbureter are easily accessible, the working parts taking care of themselves without need of adjustment. This device, which is said to effect great economy in the use of fuel, is made in all sizes from three-fourths-inch up to five-inch.

The Heinze Electric Co., of Lowell, Mass., are showing at New York several of their magnetos, coils and other ignition appliances. The magneto shown in the accompanying picture is designated as being of the low-tension type because it produces a low voltage from

the armature which is stepped up by means of a separate coil in which there is a primary and secondary winding. A low voltage is furnished by the magneto armature to the primary winding of the coil, while the secondary winding produces the high-voltage current which is distributed to the spark plugs. The magnets used in this instrument are round instead of rectangular in order to secure better contact with the pole pieces. The magnets are made of the best tungsten steel. Innovations shown by this company are a worm-driven hand-operated warning signal and a new type of carbureter.

The A. S. Campbell Co., of Boston, Mass., are showing at New York a full line of their well-known Cello electrical specialties. Their latest searchlight is the Wireless, which is so constructed as to be practically immune from wire troubles or short circuit. The searchlight is connected to the batteries through the flush-deck socket, and this socket is protected from water by a tight-fitting cover plate when the searchlight is not in use. This light is furnished in polished brass, bright nickel or black nickel finish and is sold for \$7.50. Another Cello specialty is a binnacle light which is so designed that it throws the light right on the compass dial and does not blind the helmsman. It is installed by making a flange connection on the side of the binnacle and fitting a special socket containing a bull's-eye lens.

The Sumter Electric Co., of Sumter, S. C., are showing at New York and Chicago complete lines of their high and low tension magnetos, including type JR, for make and break use; type B, and type AP. They are also exhibiting their N. G. E. A. electrode, recently standardized by the National Gas Engine Association, which enables all of the insulated part of a make and break igniter to be renewed as easily as are spark plugs. The latest, and, perhaps, most interesting machine shown in this company's booth, is their new Dixie high tension waterproof magneto, which is made in several types to take care of single and multi-cylinder engines, and those having V-cylinders. This machine has been especially constructed to withstand excessive moisture. One of the new features of this magneto involves the platinum points, which are stationary while the machine is running, and by throwing back the little cap on the breaker box, are easily seen and adjusted. Another feature is the stationary winding which is in the shape of a small coil that can be really lifted out of the magneto. A further improvement is the fact that the only rotating parts are two pieces of cast iron which revolve in ball bearings. There are no brushes, moving wires or contacts, small fibre or rubber bushings or other parts that require expert knowledge or that are easily damaged and hard to replace.

The Henricks Magneto & Electric Co., whose exhibit at the New York Show is handled by their eastern representatives, the Sutfitt Madsen Co., of 136 Liberty St., New York City, are showing several of their lighting outfits on which they are specializing this year. The most popular magneto which they manufacture for this work is their Model BC2, with enclosed automatic cutout as part of the instrument. The design of this machine makes it unnecessary to use a switchboard, and only two wires need be taken from the magneto to the battery, the lights being run from the battery all the time. Ball bearings are used throughout in this magneto, and the makers claim it to be not only high-grade in construction, simple, and reliable, but also most reasonably priced. The Sutfitt Madsen Co. are also showing a new type of running light of their own manufacture, which is not dependent on a distant source for its current supply, and which is described and illustrated in another section of this issue.

The Kokomo Electric Co., of Kokomo, Ind., are showing at New York and Chicago a practically full line of their Kingston ignition specialties, including coil boxes, switches, spark plugs, etc. One of the leading items of their display is the Model H magneto, which is an instrument of the dual type, with which batteries may be used for starting, if desired. It is made from the best materials obtainable, and all machine work is done by competent mechanics. This instrument is made to operate with 2, 3, 4, and 6-cylinder engines, and is listed at \$50, this price including transformer coil, with switch and cable for connecting coil to magneto. Model H3 in a magneto similar in construction to Model H, except that it has three pairs of magnets, and a larger armature, it generally being used on large slow-running engines. The price of this model with the same equipment as is included with Model H is \$60.

Higgins & Seiter, of New York City, have at the New York Show a display of china and glassware, which is representative of the type of work they do in outfitting the dining saloons of motor boats and yachts. The concern makes a specialty of furnishing distinctive decorations for yacht tableware, whether they be made from the owner's ideas, or whether designed by the company. While it is possible at any time to replace broken sets, or make additions to them, each design turned out is individual, and the owner may be assured that his design will not be duplicated for any other boat. These people also carry at all times what is stated to be the largest stock of china and crystal held by any retail establishment, and the owner has a wide latitude in making selections which accord with his personal taste. The prices, also, are reasonable.

Booth 61 of the Garden contains the exhibit of the Gordon Propeller Co., of Cleveland, O. The display consists of models of their propellers, one of which is fitted up to show the arrangement for bow control in the larger boats. Since the taking over of the Gordon Propeller Co. by the Upson-Walton Co., who are continuing the manufacturing end of the business under the old name, several improvements have been made in the Gordon reversible propeller. The bearings and lugs have been enlarged, giving it greater strength and durability and also reducing lost motion to a minimum. An interesting feature of the exhibit is the Gordon hub fitted with blades of three diameters to show the interchangeability of the different sized blades. The Gordon weedless propeller, whose principle claim to distinction is that it is weedless both ways, is interchangeable with the regular blades. The No-bind stuffing-box and strut, the patent rights to which have recently been purchased by the Upson-Walton Co., is also shown. Better tools and factory facilities have enabled the makers to reduce the price of this article until the cost compares favorably with that of common stuffing-boxes.

The Snow & Petrelli Co., of New Haven, Conn., are exhibiting at the New York Show their well-known line of Joe's reverse gears. This line includes one-way clutches, and several models of reverse gears of the Duplex Drive type, for use with heavy-duty motors, and gears for use with high-speed and racing engines. The Duplex gears are put out in eight regular models, covering a range of power from 10 h. p., up to 160 h. p., for use with motors operating at about 400 r. p. m. This company also make, and are showing, Joe's rear starter, while their list of products further includes sleeve and flanged couplings, tail bearings, breech-loading bronze yacht cannon, etc. Features of new and unusual interest are also shown.

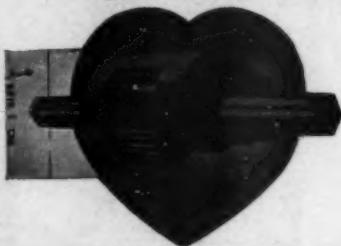
The Evans Stamping & Plating Co., of Taunton, Mass., are exhibiting their famous Paragon gears in Space 17 in the balcony of the Garden and will also be on hand at the Coliseum. One of the features of their display is their new enclosed model reverse gear, which has a new operating mechanism. This gear is notable for its compactness and simplicity of design, and the makers predict a big future for it. The case-hardened lever used with this gear enables it to be securely locked in either the reverse or the neutral position. This company is also exhibiting the Paragon speed gear which was installed in so many of the famous racing boats last season.

Janney, Steinmetz & Co., of New York City, have taken Booth 56 in the balcony of the New York Show, where they are exhibiting a full line of their well-known cold drawn seamless steel Jasco tanks. The advent of very large motor boats in the market has found this company prepared to furnish seamless lap-welded tanks of rectangular shapes as well as round, for containing several thousand gallons of gasoline. These are made very sturdy, are seamless welded throughout, and thoroughly tested so that there cannot be any leaks. In the seamless drawn product there have been two bolster or rectangular shapes added to the list of sizes, one being 13 inches wide by 13 inches high by any length up to 35 inches, and the other is 12 inches high by 14 wide also by anything up to 35 inches long. All the smaller units are nicely tinned with pure block tin so as not to be affected by the acids in gasoline, and the larger units which are made of heavy steel are left in the black iron and painted on the outside to protect them from the moisture in the air.

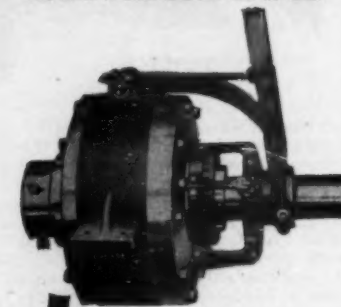
The Wilmarth & Morman Co., of Grand Rapids, Mich., will have on display at the Chicago Show a number of their reversible propeller outfits. W. & M. reversing propellers are manufactured in two and three blades, and in all diameters and pitch for motor boat use. The makers claim that their reversing wheel is as strong as a solid wheel, as speedy as a speed propeller, and affords perfect control over both speed and direction of the boat. There are just three working parts, the hub, shell, and blades, and the hub and shell are guaranteed against breakage through the



Gordon propeller fitted with blades of 3 diameters to show the interchangeability of different size blades.



Reverse gear manufactured by Carlyle Johnson Co., which is made in a new size for 1918.



One of Joe's reverse gears, manufactured by the Snow & Petrelli Co., New Haven, Conn.

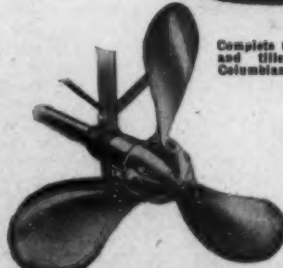


One of the famous Paragon gears, shown by the Evans Stamping & Plating Co.



A full line of seamless steel Jasco fuel tanks is shown by the Janney Steinmetz Co.

The Miller spark plug, one of the large line shown by Chas. E. Miller.



Complete rudder, stuffing box and tiller shown by the Columbian Brass Foundry Co.

W. & M. reversing propeller, shown by the Wilmarth & Morman Co.

blades striking an obstruction. While the blades themselves are unguaranteed against breakage, they are stated to be as strong as blades of the corresponding size solid wheel, and, moreover, are interchangeable to commercial limits, so that if one blade is broken it may be replaced without the necessity of obtaining a complete set of blades. The reversing mechanism of these outfits takes up little room, and thus adapts itself for use in motor canoes and yacht tenders, where every inch of space is valuable.

Chas. E. Miller, of New York City, is at the New York Show as usual with a big line of motor boat accessories. These include magnetos, dynamos, coil boxes, spark plugs, lighting outfits in the electrical line, and in the list of several accessories the products of many well-known manufacturers are included. Such devices as Klaxon horns, Gray autochime whistles, Michigan reversible propellers, Hyde wheels, Joe's, Baldrige and Johnson reverse gears, Masten tops, etc., are sold by Miller, and this concern lays particular emphasis on the fitness of Miller's Pan-American lubricants for marine use.

The F. W. Devoe & C. T. Reynolds Co., of New York and Chicago, are showing at the Garden samples of some of their extensive line of paints and varnishes, which are most suited for the uses of the motor boatman. Among these are Vernosite, a long life spar varnish, Devoe yacht white, yacht black, metallic copper for boat bottoms, deck paint, canvas deck paint, etc. This concern also manufactures a line of paint brushes, which are recommended for use with their products. Walsh's Universal Bander is a device manufactured by them, by the use of which the motor boatman may decorate his yacht china to suit his own tastes. This bander will band round, square, oval, festoon, or irregular-shaped china, glass, agate ware, etc. It is simple in construction, and the gauge rod may be changed for left-handed use if desired.

The Billings-Chapin Co., of Cleveland, O., are at the New York Show, occupying Booth 57 in the balcony. The most prominent feature of their display, and one which catches the eye from a distance is a new motion window display sign which advertises their U. S. N. deck paint. They also give a little display of their Sparvar, U. S. N. Marine White Outside Gloss, and Anti-Fouling copper paint. U. S. N. deck paint is a quick-drying deck and interior floor paint which is furnished in over twenty shades. It is stated to have given satisfaction for over 25 years, and the makers list many customers whom they have had for that length of time. Sparvar is a fine pale varnish for all exterior purposes and is especially recommended for use on motor boats. It is a quick dryer, and is stated to become hard 36 hours after application, but with elasticity enough to keep it from checking, peeling or cracking.

The Columbian Brass Foundry Co., of Freeport, L. I., are showing at New York their Columbian propellers, including the Ailsa Craig model, and their pedal reverse control which made its first appearance at last year's Show. This device is one which is designed to centralize the control of a runabout and yet leave the operator's hands free for steering and working the gas and throttle controls. It is made with two pedals and a short shaft which is connected by cable to the reverse gear lever. The left pedal controls the reverse and the right the ahead motion. Each pedal is double acting so that as the foot is raised from one and pressed on the other the pedal which has been operating the reverse gear lever is brought back to neutral.

The Brooklyn Varnish Mfg. Co., of Brooklyn, N. Y., are exhibiting at New York their K-A-U-R-I waterproof varnish which has as its base Kauri gum. This varnish is stated not to turn flat in the coldest weather and to be absolutely impervious to the effects of salt or fresh water. While it may be left in an open can for several days without skinning over, the makers state that it will dry hard enough to walk on over night, and will not mar or scratch white. This varnish is also made in several colors, glass and flat white enamel, aluminum and copper bronze. It is sold for \$3 a gallon.

The Debevoise Company, of Brooklyn, N. Y., occupy space 31 in the balcony of Madison Square Garden, and the purpose of their exhibit is especially to emphasize their DE-CO Marine Flat White, but also to include displays of their complete line of marine paints and varnishes. The great features claimed for the Marine Flat White are that the paint remains white, will not blister, crack or peel, thereby making an ideal white paint for boat use, and also resulting in the circumstance that at the end of the year the boat may be repainted without the necessity of burning or scraping. The men in direct charge of this company's booth are Messrs. James E. Winans and Frank W. Tibben, and Captain Frank Day.

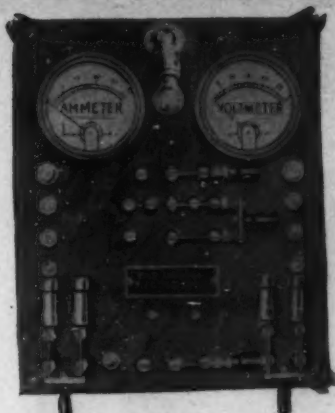
Chas. D. Durkee & Co., of New York City, are occupying a booth at the New York Show, but are establishing rather a departure from precedent in that they are not exhibiting their well-known line of marine hardware and accessories, but are fitting up their space (33) for the convenience and comfort of their friends. They will also have a stenographer there who will be at their customers' disposal.

Hector MacRae, of Baltimore, Md., is showing at New York representative articles from his line of electric equipment. One of the prominent features of his display is the 6-150 generating equipment which is the most popular set in this line. This set consists of a generator, switchboard and 6-volt 150-ampere-hour storage battery. It is designed for use on motor boats and furnishes ample light and ignition for the usual cruiser of 50 feet or less. It burns four 16 c. p. and four 6 c. p. lamps for eight hours, and running lights and a 25 c. p. searchlight can also be used. Other well-known items of the Champion line which may be seen are the Champion cut-out or circuit-breaker, Champion searchlights and safety trouble lights, and switchboards for use with different voltages.

The Chicago Varnish Co., of 30 Church St., New York City, are at Booth 36 in the Garden with a display of their paints and varnishes suitable for marine use. Prominent in the booth is their Navalite Flag trademark, which covers their well-known spar varnish, Navalite. Noticeable also in the display are a number of signs stating briefly and pointedly the results obtained with this company's products by prominent motor boatmen during the past season.

The Electric Tachometer Co., of Philadelphia, Pa., are exhibiting at New York their Hopkins electric tachometers, and are demonstrating their working principle. The Hopkins tachometer consists of a small magneto generator, gear driven from the engine shaft, and an indicating voltmeter located on the bulkhead or at any desired point on a motor boat. The two parts of the system are connected by a duplex insulated wire, brass armored to prevent mechanical injury. It is a well-known fact that when a system of coils is rotated between the ends of a permanent magnet an electric voltage is generated in direct proportion to the speed of the moving coils. Taking advantage of this, the Electric Tachometer Co. have devised a voltmeter whose dial is calibrated in terms of speed—for motor boat service, revolutions per minute. The tachometer shown in the accompanying illustration is known as Model AS. It registers from 0 up to 1,500 r.p.m., and is guaranteed to be accurate within 2 per cent. of the scale range. The split driving gear is bored to fit the propeller shaft up to and including 6 inches in diameter.

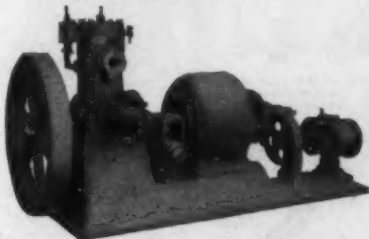
The No-Ro Motor Works, of West Roxbury, Mass., are exhibiting at New York their No-Ro Presto detachable motor. This motor has two opposed cylinders cast of special iron and beautifully machined. It has plunger pump cooling, copper water jacket, bronze propeller, rope or handle steer, three-ring pistons and other noteworthy features. No moving parts are exposed, and the design is such that no oil is thrown around. As the cylinders are set parallel with the transom, and as they receive their power impulses at



Switchboard manufactured by the Dayton Electrical Manufacturing Co.



Speedometer shown by the Electric Tachometer Co.



Fay & Bowen's unit lighting plant.



Complete Edison charging and lighting plant, exhibited by the Smith-Meeker Engineering Co.



Hector MacRae's motor boat switchboard.



Check valve manufactured by the Generator Valve Co.

the same time, vibration is reduced to a minimum. The exhaust is carried down through the propeller shaft housing, doing away with the necessity of a muffler. This motor is made both for outboard use and for canoes. It is sold for \$75, with magneto \$12 extra, and \$7 extra for carbureter.

Valentine & Co., of New York City, are exhibiting their well-known Valspar varnish and other varnishes at the New York Show, and will also have space at the Chicago Show for the display of their products. A feature of the exhibit is a test of the water-resisting qualities of Valspar, compared with those of other varnishes. This is effected by the use of an apparatus whereby a constant stream of water is allowed to flow on a varnished slab. Valspar canoe enamel and Valspar bronze bottom paint are also shown. The exhibits at the Chicago show will be similar.

Chas. H. Gillespie & Sons, of Jersey City, N. J., are showing at New York their line of Monarch varnishes. These consist of Monarch Spar, a preparation which has been used for years by large steamship companies and yachtsmen, and is stated to be proof against sun, rain and salt water; Monolac, in colors, another Monarch preparation especially made for the interior woodwork of motor boats, and Monarch engine enamel, a heat-resisting composition for refurbishing old engines. Bulldog varnish remover is a slow-drying quick-acting preparation for use preparatory to repainting, designed to do away with the burning-off method.

L. O. Koven & Bro., of New York City, are showing their standard line of Koven gasoline tanks, mufflers, etc., at the Garden. Koven tanks are made of the best quality open-hearth steel, and the fittings are so fastened that they will not become loose, while the tanks themselves are leak-proof. They are galvanized inside and out, and are thoroughly inspected before shipment to see that no dross remains to cause trouble in the fuel line later on. Many stock sizes are turned and special sizes to fit special needs are manufactured to order.

The Edison Storage Battery Co. are exhibiting at New York through their marine agents, the Smith-Meeker Engineering Co., of 123 Liberty St., New York City, Edison storage and primary batteries, as adapted for marine use. Edison alkaline storage batteries are recommended for marine use as being practically invulnerable to the effects of vibration and concussion, and as being capable of withstanding any but the most flagrant and continuous abuse. There is no appreciable chemical deterioration or mechanical disintegration of the plates while in service or standing idle, and the makers guarantee that their batteries will be capable of developing their full rated capacity at the end of four years. The Smith-Meeker Company are also showing switchboards of their own manufacture, for use with General Electric generating sets and the Edison battery. They have supplied many prominent motor and steam yachts with this equipment.

The Generator Valve Co., of Brooklyn, N. Y., are showing at the Garden their James motor boat gasoline engine specialties. These include James Acorn carbureters, check valves, strainers, bilge pumps, whistles, etc. The model G carbureter is made in five sizes from 1/4 inch up to 2 inches, and is designed for use with three-port two-cycle and with four-cycle engines. The scale of prices runs from \$8 up to \$24. Model H is made in the same number of sizes and is specifically designed for use with two-port two-cycle engines. The prices range from \$9 for the 1/4-inch size up to \$27 for the 2-inch. Zephyr air four-tone whistles, producing a clear, mellow sound which may be heard for a long distance are also exhibited by this company. The four-tone whistle is made in two sizes, costing \$5 and \$7, and the Zephyr single-tone whistle is made to sell for \$4. These whistles are furnished with or without an adjustable valve lever.

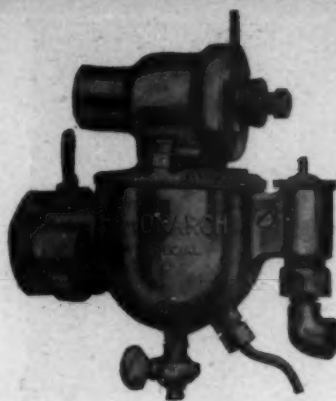
Byrne, Kingston & Co., of Kokomo, Ind., are exhibiting several of their Kingston carbureters at the two Shows. The latest Kingston is of the enclosed type, and is known as the Enclosed Pattern Kingston. The Model Y is another popular model, and in this type all air entering the carbureter is taken from a common source, the air inlet being so located as to make it convenient for the attachment of fittings for conducting warm air to this point. The main supply of air passes directly over the spray nozzle and the supplementary supply is taken into the mixing chamber so that it becomes thoroughly impregnated with vaporized gasoline. After the initial adjustment, this carbureter which has a special provision for easy starting, needs no further attention.

The Robinson-Rodgers Co., of Newark, N. J., are showing in the Annex at New York various types of the Universal Ilanisilk life-preserving devices invented by Lieut. S. P. Edmonds, of the U. S. R. C. S., retired. The British Board of Trade recently adopted Lieut. Edmonds' life preserver which is so designed that the wearer's head is held above water, even though he become unconscious. The preserver is made of Ilanisilk, a product of the Kapok plant which grows in Java. It is covered with strong khaki duck or artificial leather and will last for years. The various other forms of Ilanisilk preservers include pillows for bunks, chair cushions, seat cushions, etc. This exhibit includes practical demonstrations of the floating power of Ilanisilk in water, and samples of this product in various stages of growth and manufacture.

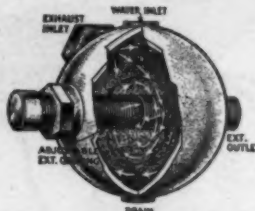
The Thermex Silencer Works, of East Boston, Mass., are showing at New York their improved Thermex silencer, which is constructed with an adjustable exhaust outlet, designed to insure maximum power with the minimum noise of exhaust. When installing this silencer in a boat it should be placed close to the exhaust outlet of the engine, with all the jacket circulating water piped to its top, where it enters in the direct path of the entering exhaust gases. The force of the exhaust gives a circular motion to the water and gas, mixing them thoroughly, and lowering the temperature of the exhaust gas from about 1,500 degrees to 100. The circular motion of the elements within the silencer causes the suspended water to be thrown to the inside of the outside shell by centrifugal force, whence the water is led to and runs out of the permanently open drain in the bottom, leaving the gas at the exhaust outlet in the centre of the sphere comparatively dry and without circular motion. The dry condition of the gas, and its reduced volume incident to its reduction in temperature, makes it possible to use a smaller sized outlet than inlet, thus making the installation lighter, cheaper, and easier.

The Clifton Motor Works, of Cincinnati, O., are exhibiting at the New York Show representative models of their Clifton four-cycle engines. These engines are made in seven sizes in two, three, four and six cylinders, and are all, with the single exception of the six-cylinder machine, of the heavy-duty type. The two-cylinder motor in this line is rated at 14 h. p., operating at 400 r.p.m., and has cylinder dimensions of 6½x7 inches. This type is also made in three, four and six cylinders, and the respective sizes develop 20, 28 and 60 h. p. The three and four are run at 400 r.p.m., but the six, in the medium-duty class, operates at 600 r.p.m. The other sizes comprise a four-cylinder 20 h. p. machine, with 5x6-inch bore and stroke, and a three and a four with 8½x11-inch bore and stroke developing 65 and 90 h. p.

In addition to a full line of Kainer steers, Geo. B. Carpenter & Co., of Chicago, are exhibiting at New York and Chicago a number of different articles which are of interest to the motor boatman. One of these is the Carpenter post light which is made of polished bronze and is designed for use in high-grade runabouts. It combines the Class 2 bow light and snubbing post in one. Its light equipment consists of a 6-volt tungsten bulb and socket having short wires for making connections, and a triplex lens. It is stated to be strong enough to hold a mooring



Monarch Special, carburetor for motor boat use.

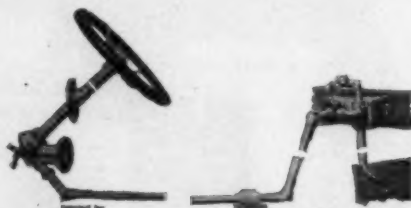


Thermex silencer, with adjustable exhaust outlet.

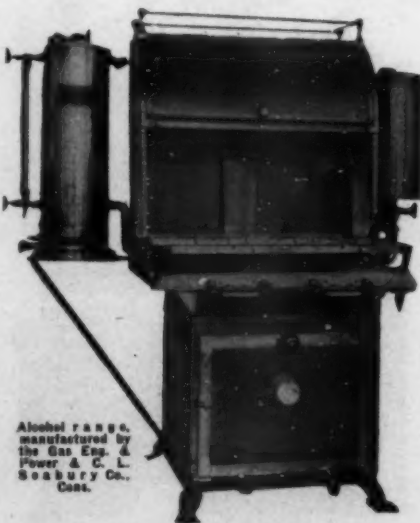


Engine reverse gear control, manufactured by the Gray-Hawley Co.

The Matthews electric capstan, which has a lifting speed of 21 feet per minute.



Steering gear, shown by Geo. B. Carpenter & Co., which rigidly connects the rudder to the steering wheel.



Alcohol range, manufactured by the Gas Eng. & Power Co. of Seabury Co., Conn.

line and neater than the ordinary bow light. Carpenter's patented searchlight control, designed to operate the searchlight from the bulkhead is also shown, and then there is the Carpenter safety engine starter which is made in two sizes. The stand for this starter is made with an adjustable arm, allowing the crank to be placed in any convenient position. The crank is fitted with a safety device to prevent injury to the operator through back-firing of the motor. The sprockets are made of steel with cut teeth insuring quiet operation, and the only moving part of the starter when the engine is in operation is the flange coupling contained within the lower ratchet sprocket.

The Monarch Valve Co., of 112 Front St., Brooklyn, N. Y., are at the Garden, with a very interesting assemblage of their marine specialties. Prominent in the exhibit are the two types of Monarch carbureters—the Monarch Special and the Standard. Then there are vaporizers and check valves, air valves, and accessories for the water circulation system, including pump suction connections, with strainers. Stuffing boxes and stern bearings are items in this line, and under the ignition category are found Monarch magnetos, circuit breakers, and spark coils, in various types.

Old Roman Solder is shown at New York by the Old Roman Solder Co., Inc., New York City. It is intended for use on motor boats, in machine shops, etc., in a variety of ways. It is applied without heat, and it is only necessary to clean the part to be soldered free of all grease and dirt. The makers recommend it for caulking boats, and state that it can be applied while the boat is in the water. It is also used for stopping cracks in water jackets, and in fact is intended to be applied wherever solder may be needed. A demonstrator whose business it is to punch holes in pans and fill them with Old Roman Solder is on hand at this firm's booth.

The Matthews Boat Co., of Port Clinton, Ohio, are exhibiting at the New York Show, and will be on hand at Chicago, with a number of new boat appliances, among which are their electric capstan, electric lighting outfit, electric pumps for gasoline, water and air, made in different combination sets, exhaust heaters, and special equipment, which they have been developing for installation in boats of their own manufacture, and other motor boats. They are not this year showing one of their boats, but have on hand plans and photographs of boats of their construction, showing the type of work which they turn out.

The Platt & Washburn Refining Co., of New York City, are exhibiting their Veedol engine oil at the Garden Show. This oil is sold in handy flat one-gallon cans and in large quantities and is made in the regular consistencies. This company is distributing a valuable book based on a series of experiments made in its laboratory covering practically every type of engine and every make of oil. From these tests the company has been able to figure out the best oil for every motor in summer and winter conditions. Of special interest to engine owners is that portion of the book which takes up operation and lubrication of two- and four-cycle engines, reverse gear lubrication, etc.

The Gray-Hawley Mfg. Co., of Detroit, Mich., have taken space at the Chicago Show where they will exhibit a full line of their motor boat accessories. Among the best known of these are their Gray muffler and Gray whistle outfits. The muffler has been on the market for 15 years, and the makers state that its steady sales attest the correctness of the principles of its design. The openings in the interior construction of this silencer are so arranged that the exhaust forms its own cushions and passes through freely without sharp turns, and without meeting pockets, baffle plates, etc. Gray whistles are made to operate on air, steam, or burned gas pressure. Gray spark and throttle controls are also well known to the motor boatman. These are made for horizontal or vertical installation and in many types and sizes.

The Smith-Serrell Co., Inc., of New York City, are exhibiting at the Garden a complete line of flexible couplings, manufactured by the Francke Company, suitable for all sizes of motor-boat engines. In addition to this they are showing a model demonstrating the freedom from misalignment strains obtained by the use of a Francke flexible coupling in place of an ordinary rigid coupling. These couplings are provided each with a central bolt, which transmits the propeller thrust, and pull right through to the engine thrust bearing, obviating the necessity for an extra thrust bearing in the propeller shaft. Advantages claimed for these couplings are elimination of leaky stuffing boxes, through the removal of shaft stresses, avoidance of heated bearings, and added power to the engine through the elimination of part of the friction load.

The exhibit at the New York Show of Edward Smith & Co., of Long Island City, N. Y., is located on the mezzanine floor and consists of a fine marine scene of the Panama Exposition, with a tank of real water in the foreground representing a lagoon, on which floats a model of a fully-equipped motor boat. The boat is electrically lighted and propelled, and carries a flashing searchlight. It is finished as a practical demonstration of the use of this firm's Spar Coating and Yacht White. The cabin is coated with I. X. L. No. 1 interior varnish. There is also a submarine which sports about, coated with Marinite, this concern's varnish for submerged work.

Chas. P. McClellan, of Fall River, Mass., is showing at New York a number of McClellan tops and spray hoods for use with open boats and runabouts. McClellan's sliding combination spray hoods, as shown in the accompanying illustration, are made in any length and width, fitted to both ends of the cockpit of an open boat, making a complete night cover. All fastenings are simple, secure and convenient. When set for night or weather cover, it is not necessary to detach any part of the frame work for entrance, as all hoods are made with an opening on the side, with flaps and lapels hooked together with tent hooks and eyes. The sliding hoods are so constructed that the hoods slide on rods attached to the washboard, allowing the frame to slide fore and aft, making a neat fit around the washboard. All fixtures connecting the frames are lever-locked, allowing the hoods to be removed in a short space of time without the necessity of fumbling with nuts, pins or screws.

The W. S. Hall Co., of Rochester, N. Y., are at the Garden with an exhibit covering their latest productions in the steering-wheel line. One of the most recent of these is their Reliance Rochester Special, which is of the automobile type and whose outstanding feature is the tilting rim, which is so designed to give the helmsman easy access to his seat. The wheel is also removable from the steering column, permitting it to be stowed away when the boat is not in use to prevent theft. Another wheel of this make, and the one shown in the accompanying illustration, has been designed with the idea of supplying a steering and engine control for the hydroplane, where the motor is well aft, and the helmsman's cockpit space is limited. The gear is placed on a thwart, the quadrant being within the wheel and the engine control levers projecting from underneath. Many other types of steering gear, with plain drum, scored drum or rack and pinion control, for runabout and cruiser use, are also shown.

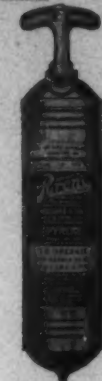
David Kahnweiler's Sons, of New York City, are exhibiting in Booth 35 on the balcony at the Garden a full line of life preservers, ring buoys, life preserver pillows and cushions, as well as canvas fenders, mooring buoys, fire extinguishers, etc., for equipping motor boats. One of their cushions which has achieved considerable popularity is a life-preserver pillow measuring 16 by 16 inches and weighing 1 pound and 8 ounces. The covering is of artificial leather of the best quality, being soft and pliable and not liable to peel or crack. The filling is of a soft, durable, non-absorbent material, which is stated to have sufficient buoyancy to keep the heaviest persons afloat indefinitely. This pillow, which is supplied in tan, red or green, is provided with substantial strap handles, and is sold for \$1.50.



Sliding combination spray hood shown by Chas. P. McClellan.



Krico carburetor, shown by the Gray Motor Co.



Well Pyrene fire extinguisher.



Francke flexible couplings for relieving misalignment strains.



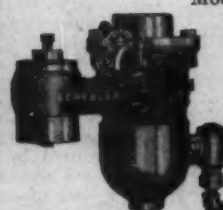
Koban, 2 h.p. two-cylinder outboard motor.



Hydroplane steering gear, with controls manufactured by the W. S. Hall Co.



Motor boat life preserver cushion, shown by David Kahnweiler's Sons.



Famous Schebler carburetor manufactured by Wheeler & Schebler.

The Pyrene Manufacturing Co., of 1358 Broadway, New York City, are at Booth 29, at the Garden, and will also exhibit at the Chicago Show. Their display consists of Pyrene fire extinguishers, and brackets and boxes for holding the extinguishers, as well as a number of practical demonstrations of the principle on which Pyrene works in extinguishing fires. Pyrene, when pumped from the can on the fire forms an impenetrable blanket of gas, which envelopes the burning object, and by preventing the oxygen, which is a content of air, from reaching the flames, suffocates them. This gas, it is said, forms at temperatures even lower than the burning point, and it thus serves, when applied to material near the fire which is working up to the combustion temperature, to keep the fire from spreading. Pyrene liquid is non-damaging and non-corrosive, and does not evaporate or deteriorate, as it is supplied in an air-tight container.

The Koban Mfg. Co., of Milwaukee, Wis., are exhibiting at both Shows their 1915 improved two-cylinder outboard motor. Big sales in 1914 opened the way for wider distribution of the Koban motor this season, and the makers point out that the mechanical ideas and principles involved in its construction were entirely responsible for its last year's demand. The advertised power of this machine is 3 h. p., but this rating is conservative as the motor is stated to be powerful enough to drive the boat at a fifty per cent. greater speed than is attained in other types. It turns a 10-inch propeller, built strictly on speed lines, having a pitch of 16 inches. The unique feature of this motor is its double-cylinder design, and this two-cylinder principle is the factor that eliminates vibration. Lack of vibration with an outboard motor is a highly desirable feature, as a smooth-running machine not only conserves the life of motor and boat, but makes steering a much simpler operation.

The Anderson Engine Co., of Chicago, will have an interesting exhibit at the Chicago Show, in which they will display several different Anderson motors. One of the most popular of these machines is the 100 h. p. heavy-duty which has been used so much for operating work boats, dredges, pontoon bridges, and for doing other heavy work. This motor is a four-cylinder, four-cycle machine with separately cast cylinders measuring 9 1/4 x 11 inches. Designed to work at 400 r.p.m., it is guaranteed to deliver 10 per cent. excess of its rated power. The cylinders are cast from a special close-grained gray iron, and the piston are of the same material, strong, though light in weight, and carefully fitted. Lubrication is effected by a Detroit mechanical oiler, and carburetion is by a Schebler carburetor. The engine may be fitted to run on kerosene.

The Michigan Wheel Co., of Grand Rapids, Mich., are down on the cards for an interesting exhibit at the Chicago Show. Here, as formerly, they will make a special feature of their line of speed and weedless wheels and reversible propellers. Michigan reverse gears of both the multiple disc and the expansion-ring types will be on display, as well as their steering wheels in several types. An assortment of marine hardware, including wheel pullers, stuffing-boxes, pumps, couplings, etc., will fill in the chinks, and the Michigan portable motor will occupy a prominent position. This motor, which is listed to sell for \$70 up to \$95, is very simple in design and reliable in operation.

Wheeler & Schebler, of Indianapolis, Ind., are exhibiting at New York and Chicago several of their Schebler carburetors, which are adapted to marine use. Among these are Models L, D, R, and H, which may be used with marine motors of different sizes. Model L, which we show in the accompanying illustration, is recommended by the makers for its rapid acceleration, and for its fitness for high-speed work. It is of the most improved lift-needle type, and is so designed that the amount of fuel entering the motor is automatically controlled by means of a raised needle working with the throttle. The control of gasoline can be adjusted for low, intermediate, or high speed, each adjustment being independent, and not affecting either of the others.

AMONG *the* CLUBS

Anchorage of the New York Motor Boat Club.

Chicago M. B. C. Joins Power Squadrons.

One of the most important matters that the Chicago Motor Boat Club has yet undertaken was pulled off recently aboard Commodore, the Illinois Naval Training Ship, lying in the river at the State Street bridge. Through the efforts of Mr. Willard, Lieut. Stebbins, of the Boston Yacht Club, made the trip to Chicago to give those members who had signified their good intentions, an informal talk about the United States Power Squadrons. The purposes of this movement were so manifest that about twenty of the club's members unanimously agreed to go ahead with the idea and form a local squadron in conjunction with the club. The magnitude of the undertaking and what it means to Chicagoans in gaining just recognition for themselves and their boats as to their rights on the water cannot be gainsaid, especially when Congress and the Government naval officials are backing the movement and lending it every aid. Lieut. Stebbins has recommended to the parent body the appointment of Captain Evers, Owen McClurg and John McAleer, as the examining board, before whom all members will have to go to get their certificate and permission to fly the U. S. P. S. ensign, which guarantees for owner and guests a thoroughly experienced navigator in charge of the boat. This club is the first on the Great Lakes and, in fact, in the entire West, to form a squadron, and its action places it in the limelight as one of the foremost clubs in the country. Evolutions consisting of at least six drill periods will be held during the coming season off Lincoln Park, and will be conducted entirely by signal flags and compass.

S. S. P. B. C. of Chicago Holds Annual Meeting.

The South Shore Power Boat Club, of Chicago, held its annual meeting recently when the following officers were elected: Commodore, W. T. Bonfield; vice-commodore, W. F. Rabb; rear commodore, F. Sherwin; secretary, Geo. W. Schaeffer; treasurer, H. J. Kleker; directors, E. T. Youngfelt, G. E. Tipton and J. Q. Annable. The retiring officers reported a substantial gain in membership during the past year and that future prospects are exceedingly brilliant. The club has a present membership of about 100 and a fleet of 81 boats. The headquarters of this organization are in Jackson Park, the site of the World's Fair in 1892.

Lively Election at Camden M. B. C.

At the recent meeting of the Camden Motor Boat Club, of Camden, N. J., so much interest was taken in the polling that the members sat up half the night to learn that the following officers had been elected for the ensuing year:

Commodore, John C. Vanderslice; vice-commodore, Charles P. Johnson; fleet captain,

George P. Harrison; recording secretary, Joseph H. Magee; financial secretary, W. W. Bardeer; treasurer, E. Clark Headley; measurer, Jacob C. Schmidt; trustees, W. P. Bradford, John C. Clancy, William Clifford, Dr. Drexler, John J. Jay, Jr.; Charles Kellum, H. Vinton Martin; finance committee, Austin M. Clark, Howard J. Dudley, Joseph Shackelford.

It has been a long time since such an interest was taken in the annual election. The club house was thronged during the hours of balloting and until the final vote was counted. While the interest was keen and there was some tall electioneering it was of the friendly sort, and at the conclusion winners and losers remarked that such activity would make for the betterment of the club by placing every officer on his mettle.

Dates Set for the Gold Cup Races.

The Lake George Regatta Association has forwarded a challenge to Mr. Morris M. Whitaker, secretary of the Motor Boat Club of America, for a race for the Gold Challenge Cup of the American Power Boat Association, and also for the One-Mile Cup. This challenge has been accepted by the Motor Boat Club of America, and the dates of July 29th, 30th and 31st, 1915, have been set for the races. The club has tentatively settled on Manhasset Bay as the location for these important races.

M. V. B. A. Meetings, Past and Future.

A convention of boatmen of the Middle Western States has been called for March 5th to be held in connection with the National Motor Boat Show at Chicago, from February 27th to March 6th. This action was decided upon at a meeting of the officers of the Mississippi Valley Boat Association held at Davenport, Iowa. The convention will formulate plans for the 1915 boating season in the West. The meeting endorsed the Chicago show, and the boatmen will co-operate with the National Association of Engine & Boat Manufacturers and other interested organizations to promote record attendance.

Several important changes in the racing rules for 1915 were made at the Davenport meeting, the limit of cubic inches of piston displacement in Class C being raised from 677 cubic inches four-cycle and 591 cubic inches two-cycle, to 695 cubic inches 4-cycle and 608 cubic inches two-cycle, and in Class D, from 900 cubic inches four-cycle and 788 cubic inches two-cycle to 965 cubic inches four-cycle and 844 cubic inches two-cycle. The twelve and one-half per cent. penalty was allowed in all cases to remain on the two-cycle engines. It was provided, to avoid delays in finishing races caused by the participation of boats which are outclassed in the larger events, that a boat of one class may enter only two higher classes, unless it shall win in such advanced classes, in which case it may enter two classes above each winning.

North Hudson Y. C. Elects.

At the annual meeting of the North Hudson Yacht Club held at their clubhouse at Woodcliff, N. J., the following officers were elected to serve for the ensuing year: Commodore, John J. Martin; vice-commodore, Frederick L. Steinler; fleet captain, Joseph F. Mallard; recording secretary, John J. Donnelley; financial secretary, Henry Weeber; treasurer, Frederick T. Mallard, Jr.; trustees, Otto Weeber, Gotlieb Westphal, and Chas. W. Clayton. The past year was a very successful one for the club, both financially and socially, and the membership has been greatly increased. With the opening of spring it is expected that there will be a number of new boats added to the fleet. The annual dinner and entertainment will be held the latter part of February at Gent's Hall, Union Hill, N. J., and arrangements are in progress to hold the Fourth Annual Ball the first Saturday after Lent at Duhne's Imperial Hall, New York. The committee are sparing no expense to make this affair "the best of them all."

Mill Creek Y. C.

This club has been one of the busiest on Jamaica Bay during the past year, and the new clubhouse at the foot of Flatbush Ave., Flatlands Bay, L. I., is now completed—with deep water anchorage at all tides it ranks with the few. Many new members have been added, and at their annual election, which in former years, as now, was followed by a jolly dinner, the following officers were elected: Commore, Henry H. Kuhn, Sr.; vice-commodore, William E. Peckham; rear commodore, John Schlott; fleet captain, Peter Schwarting; secretary, H. E. Peckham; treasurer, John Mahnker; financial secretary, Philip Fisher. The following will serve as the Board of Directors: Messrs. W. J. George, Henry Kuhn, Jr., Henry Ernst, L. J. Brown, C. P. Boston, John Piciche, and Henry Grote.

Pavonia Yacht Club.

The newly elected officers of the Pavonia Yacht Club on the Newark Bay, at Bayonne, have just met and organized. The new officers are as follows: Commodore, Col. Clarence Hodson; vice-commodore, A. E. Williamson; rear commodore, W. A. Bauman; fleet surgeon, M. S. Hatch; treasurer, J. J. Bechtold; corresponding secretary, D. Mackenzie; financial secretary, D. A. Woodruff.

The Pavonia Yacht Club, which was organized 1867 and incorporated in 1869, is said to be the third oldest yacht club in the United States. As heretofore a series of entertainments will be given through the year, some of which will be under the auspices of the Ladies' Auxiliary. Further improvements are contemplated this year on the club's commodious premises. The directors for 1915, in addition to the officers, are as follows: Messrs. S. W. Decker, C. Schmidt, F. Baker and Anthony Schneider.

Prize Contest in Questions and Answers

Keeping the Thief Out.

Means to Make One's Boat and Its Equipment More Secure from the Depredations of River Pirates.
Protection Assured to Members of Clubs and from the Organized Harbor Police.

THE PRIZE CONTEST—Answers to the First Question in the December Issue.

Protection at Clubs.

(The Prize-Winning Answer.)

THE first precautionary measure to protect your boat from the depredations of harbor and river thieves is to moor your boat at some well regulated club or boat house where constant espionage by an employe is required. This as a rule will afford you about the best protection against theft that can be ordinarily provided. For localities where such a club or boat house is not convenient I would suggest that you organize your respective boat owners for the purpose of mutual protection and by either hiring a competent watchman or alternately taking turns at watching you can reasonably expect to be free from molestation.

The installation of mechanically operated alarms while of some value often fails through the thief's knowledge of them, and the methods he employs to intercept them.

The installation of flashlights has the disadvantage of being necessarily exposed, which hinders their usefulness, while alarm bells can rarely be heard with an offshore wind.

Locks are of value in suppressing the inquisitiveness of some people and very often preventing petty thefts, but are of no avail against professional thieves who go prepared for just such conditions, and you will usually find that the stronger the lock the weaker the door and the damage correspondingly greater.

A good line of precaution to follow is to mark such articles of equipment as may be easily taken with the owners or boat's name, painting name, etc., on life preservers and such articles and etching or stamping metal articles. This method usually takes care of the near-to-home bunch who are more often than not the real thieves.

To etch name or initials on metal parts first rub soap over part to be etched, inscribe name on, etc., with a fairly sharp-pointed instrument, apply some nitric acid, let stand for a few minutes, wipe off and name will be indelibly burned in.

In general, would say that by mooring at good club or boat house, making no ostentatious display of luxurious equipment and being a good fellow will generally give you ample protection from what are the dread of most yachtsmen, the harbor and river thief.

THEO. P. KLEISRATH,
New York City.

The Harbor Patrol.

SEVERAL years ago, at the height of the wave of motor boat popularity which was then sweeping over the country, the anchorages about the writer's home harbor became thickly dotted with small motor craft of all descriptions. Many of these boats were not used by their owners oftener than once a week and, being equipped with certain brass work, they afforded a very apparent opportunity of making a little "easy money" to the unscrupulous owner of a skiff of any sort.

The launch owners often left their tools, rope, anchors, fog horns and similar articles of equipment in the open cockpit or in lockers which had no locks, and every few weeks the local papers would print stories of piratical descents upon the mooring grounds, always appending a lengthy list of property reported missing in consequence thereof. After hauling out time, too, the yards would be "visited" and there were tales of bronze shafts sawed off close up to stern bearings and propellers carried away for junk. Once a small motor was stolen bodily from its bed, together with all the other metal work on the boat.

The remedy for the foregoing state of affairs was largely sought by our local boat owners. At length a petition was drawn up praying the City Government to purchase and maintain a police patrol boat, and largely through the activity of members of the local yacht club and Power Boat Association ably supported by property owners along the waterfront, a smart 30-foot cabin launch was purchased by the Police Department and four patrolmen were assigned to her, two for duty by day and two by night. This boat now patrols the docks and anchorages about the harbor day and night for about six months of the year and depredations have practically ceased since her advent.

Boatmen, too, have now learned to provide suitable lockers for their tools and equipment, and these lockers usually fasten with stout "Yale" padlocks. Also many more cabin boats are now in use, the cabins being better fitted with good locks. Anchors are no longer left lying on deck, nor are rode lines left with their ends invitingly peeping from a deck-pipe. Owners have learned to visit their boats as frequently as possible and promptly report their losses to the police. Nothing discourages theft so surely as prompt and vigorous action on the part of the victim. It is an excellent idea for boat clubs to take up these cases of theft from boats of their fleet and prosecute them vigorously as a club, using all the resources of the organization to secure convictions whenever possible.

When an owner hauls out his boat for the winter, if she is to be left in the open on an unfrequented beach, the propeller and shaft should be removed to some safe place and all outside brass work should also be taken off.

A. O. G.,
Portland, Me.

Questions for the April Issue.

1. Discuss the advantages and disadvantages of different steering positions as found on modern cruisers of medium size.

(Suggested by R. W. G., Lincoln, Neb.)

2. Describe, with drawings, a good practical cover for open cockpit in runabout when not in use.

(Suggested by C. G., Baltimore, Md.)

3. Describe, with plans, the best arrangement for the installation of motor in a small hydroplane.

(Suggested by W. E. J., Philadelphia, Pa.)

RULES FOR THE CONTEST

Answers to these questions, addressed to the Editor of *MoToR Boating*, 119 West 40th St., New York, must be (a) in our hands on or before February 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 25th of February.

The prizes are: For each of the best answers to the questions above, any article advertised in the current issue of *MoToR Boating*, of which the advertised price does not exceed \$25, or a credit of \$25 on any article advertised in the current issue of *MoToR Boating* which sells for more than that amount. (There are three prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer all three.)

For each of the questions selected for use in the next contest, any article advertised in this issue of *MoToR Boating*, of which the advertised price does not exceed \$5, or a credit of \$5 on any article advertised in this issue of *MoToR Boating* which sells for more than that amount.

If you win the prize you must allow us to do the ordering of the prize you select.

When you send in your answers you must state what you will take for a prize should you win one.

Using and Taking Care of Charts.

How the Government Charts Can Be Most Conveniently Handled on Different Types of Boats. The Chart Case Recommended for Some Types and Chart Cabinets for Others.

THE PRIZE CONTEST—Answers to the Second Question in the December Issue.

For Use in All Weathers.

IN THE design and construction of a suitable chart holding arrangement the most important thing to consider in the arrangement is to have the charts really handy to the steering-wheel; also the arrangement of charts would have to be in a place where they could be read in wet or windy weather. In the sketches shown is a practicable method of a chart-holding arrangement suitable mostly for cabin cruiser and when located on the after end of the cabin, handy to the steering-wheel, it will take up very little room.

The case for the charts is made in halves, with the top half hinged and fitted with a glass top through which the charts may be easily read; the size of the chart case should be about 30" x 12" to suit the largest size charts.

The rollers, upon which the charts are rolled, are similar in design to a camera spool, only on a larger scale; they should be at least 1 in. in diameter. A curtain shade roller would answer the purpose very well. A saw cut is run through the center of the roller from one end to about 2 in. from the opposite end. To hold the rollers in place in the chart case, disks are fitted at the ends of the rollers; these also serve as handles with which to turn the charts. A small crank handle can easily be made in place of these disks and will prove easy to operate.

The distance between the rollers should be about 10 in., which will give ample room to lay a scale on the chart for a reading.

In constructing the cover of the chart case care should be taken to make the top cover weather-tight; in some cases a canvas cover is fitted over the case to keep the sun off. This is not a necessity, however, but a handy thing. To wind the charts up on the rollers it is only necessary to insert the end of the chart in the roller and wind up on one roller, then insert the other end of the chart in the second roller and the chart is ready for use.

To keep the chart flat up against the glass at all times, a spring is fitted under each roller, as shown in the sketch. With a lock fitted, the charts may be left in the case until a different chart is desired. The center of the roller is located at the joint in the case; this enables the quick removal of the chart and roller by simply lifting the cover.

A chart case similar to this one has been in use on a cruiser here on the coast of Maine and up the winding Kennebec River for the past seasons, and has given satisfaction.

WM. RENZ,
Bath, Me.

The Chart Case.

WE HAVE to divide our answer into the use and then the stowing of the charts. I have a raised-deck cruiser on the Hudson River, and a 20-foot open craft on the St. Lawrence River,

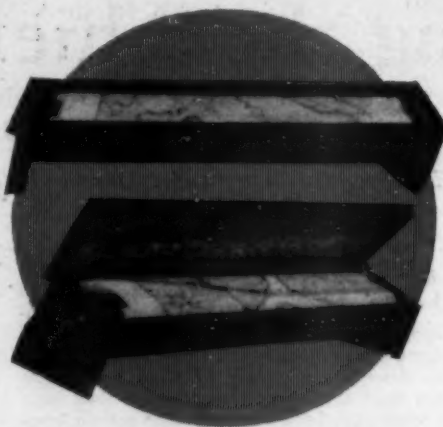
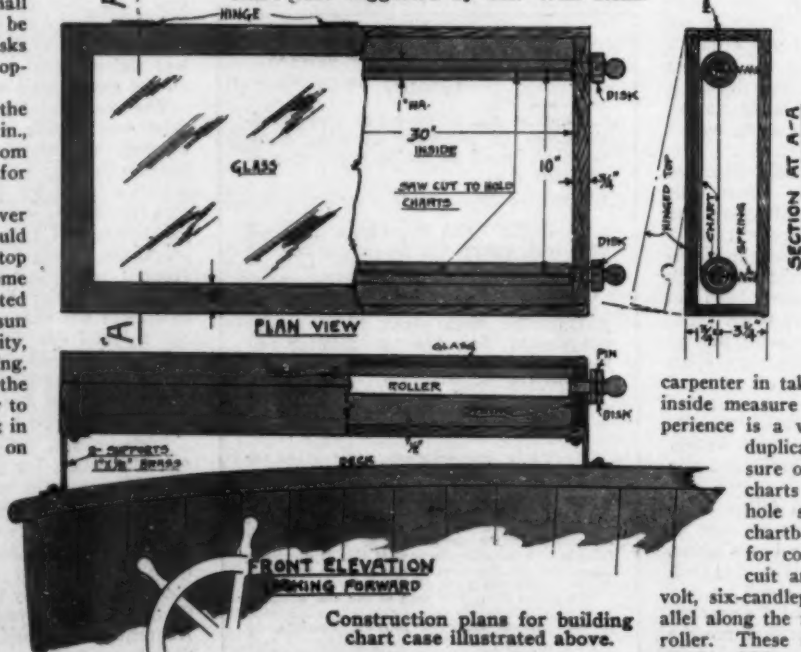


Chart case suggested by Mr. Wm. Renz.



and have adopted with the greatest satisfaction the following different plans: Figure 1 illustrates the chartboard used on the cruiser, open to show its general construction, which is that

of an oblong box about two inches longer than the largest average chart, eighteen inches wide, about seven inches deep in the forward and four inches deep in the after side. Its essentials are two rollers, shown in the photograph placed about an inch and a half away from the front and back of the chartboard in order to permit the charts to be wound upon the rollers freely and in sufficient number to give a wide range of chart distance for the boat, which in my own board is about 400 miles. This distance is equal to the cruising radius of the boat when all her tanks are filled with gasoline. The bearings of these rollers are wooden blocks in slides at the ends of the chartboard, supported by heavy springs so that when the lid is open the rollers and bearings rise slightly above the edge of the ends, and so that when the lid is down the bearings are pressed against the ends of the lid and the surface of the rollers against the plate glass window. It will be at once seen that this plan makes pressure of the chart against the plate glass so that the chart is always taut and even, and yet permits all the charts to be wound from one roller to the other without opening or otherwise disturbing the lid, because the roller with its bearings gradually descends

along the slots as the amount of charts increases on the roller, or ascends as it decreases, according to the direction of travel of the charts from one roller to the other.

Figure 2 illustrates the chartboard closed with one chart stretched between the rollers, in area sufficient for all motor boat navigation purposes. It is applied endwise instead of sidewise because this particular chart is one of the longest the government issues, being that of New York Harbor, and was overlooked by the

carpenter in taking the sizes of chart for the inside measure of the chartboard. This experience is a warning to anyone seeking to duplicate the board that he must be sure of the measurements of all the charts which he may employ. The hole shown in the bottom of the chartboard passes the electric plug for connecting with the lighting circuit and for feeding the three six-volt, six-candlepower bulbs connected in parallel along the front of the chart beneath the roller. These are not shown in the photograph, which was taken before they were installed; neither is the flush switch on the front of the chartboard shown which permits the helmsman to turn the light on and off as he desires at night, and thus spare his eyes from glare-weariness.

The charts are fastened to the rollers and to each other by pieces of zinc oxide, surgeon's adhesive plaster, which must be of the best quality, as the cheap material sweats and allows the charts to stick together.

ROLLER,
N. Y. City.

Chart case made of leader pipe, suggested by Deck-Hand.

A Galvanized Iron Holder.

THE accompanying photograph is of a home-made chart case, made out of a piece of three-inch iron leader pipe. It is thirty-eight inches long to accommodate thirty-six-inch charts conveniently. A piece of unbleached muslin was torn up in two-inch strips which are wound around the pipe spirally with the selvage edge out. This was given a coat of orange shellac and has since had occasional coats of spar varnish. The end caps were spun of aluminum to fit and one of them put on while the shellac was wet so that it is firmly affixed to the case, while the other is removable.

We have seen tin cups which, with their handles removed, could be used for this purpose, or, if desired, the handles could be left on and hooks provided on the boat to hang the case up by these handles. If ready-made cups are used for the end caps the sheet metal tube would have to be selected or made up to fit them.

This makes a chart case of attractive appearance and is very strong and waterproof. It affords a good means of carrying the charts and will hold at least a dozen rolled up, which is the only proper way to keep them on a boat which is too small to provide space enough for a drawer to keep them flat.

The charts are spread out on the cabin roof when they are used. For night navigating one of the small pocket electric lamps has proven to be of the greatest value, as it gives the light just where and when it is needed.

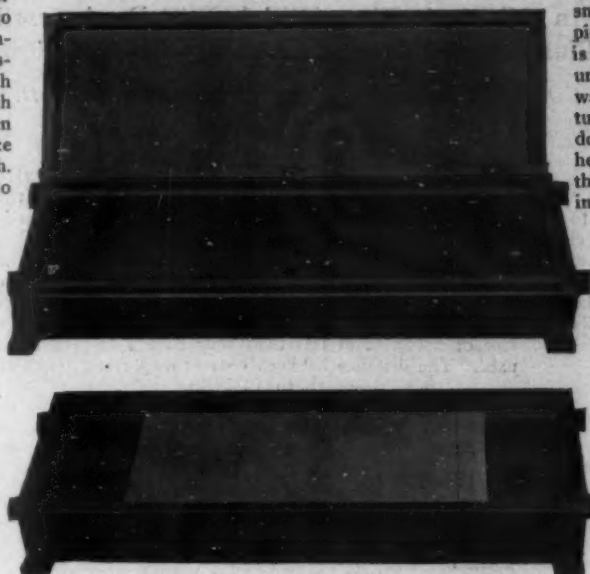
Many advocate the use of a roller arrangement with the charts pasted on a continuous strip of cloth. These arrangements are convenient but have certain serious drawbacks. They are seldom large enough to show sufficiently long ranges. They are nearly always covered with glass so that the use of a pencil on the charts is impossible although it is highly desirable. Again the adjacent charts seldom line up properly with one another. But the most serious objection is that it is a great deal of trouble to provide very many rolls of charts for extensive cruising, and besides they are of different widths. Of course, they may be provided for familiar waters, but on familiar waters charts are not much needed. The writer has charts from Cape May to Penobscot Bay, including river, lake and harbor charts, and it would require a great many rolls of charts and some duplication to fit all of them in a roller contrivance.

"DECK HAND," N. Y. C.

A Portable Chart Frame.

TO the man who does all his cruising in localities with which he is thoroughly familiar, chart equipment is of hardly any value. But to those who navigate strange or unknown waters, charts and all that goes with them are very important factors in the

navigation equipment, and suitable means should be provided not only for stowing away the various sheets when not in use, but also to facilitate the handling of the large maps when in use on deck.



Very convenient form of chart case for both day and night sailing, suggested by Roller.

For convenient stowing purposes on the ordinary cruiser a compact chart cabinet, such as shown in the accompanying sketch can be

open at a slight angle the flat cover can be used as a desk or drawing board on which the charts can be spread out when plotting courses. The filing racks from which the charts hang are simply straight pieces of stock with a small slot at each end through which a piece of good quality woven elastic band is inserted, drawn tight and tacked to the under side. The charts are pushed forward under the elastic and their edges turned up to prevent them from sliding down. The racks themselves are up-held in the cabinet by notched slots at the opposite upper ends as clearly shown in the sketches. As an alternative method of stowing the charts, a galvanized sheet-iron chart case is sometimes suggested to those who are greatly cramped for room. This method, however, soon renders the charts worthless, owing to constant rolling and unrolling, and the chart case is not to be compared with the chart filing cabinet, which, when completed, occupies an almost unnoticeable amount of floor space (less than 3 square feet).

The chart frame for use on deck is a light rectangular box fitted with a plate glass and two rollers on which the chart is rolled or unrolled at will, thereby allowing only the portion of the course needed to come below the surface of the glass. The rollers can be made from ordinary window-shade rollers, slotted with a keyhole saw to receive the chart the same way a camera film is started on the spool. Handles for operating the rollers can

be made from brass wire pinned in place and a small hole drilled in the bottom board of the frame in which this part is to turn. The upper portion of the roller turns in a hole bored a neat "running" fit (for the roller) in the top board of the box. When in use the frame should be placed somewhere near the steering gear.

Detailed instructions for making these two pieces of chart equipment are hardly necessary, for the work minus added "elaborations" is comparatively very simple.

C. E. BRADLEY,
Fall River, Mass.

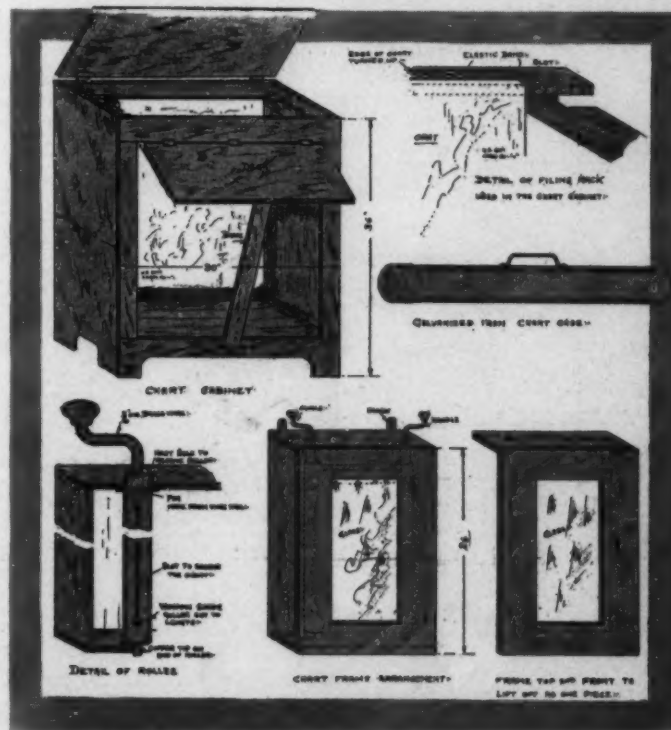
Chart Sections.

A VERY good way of handling the chart proposition on a small boat, and one that has proved very successful with me is to take the regulation chart and cut same in four parts, so that you will have a compass rose on each part.

Now take two picture frames the size of the quarter cut chart, take out the glass and then whitelead the rabbet in frame and replace the glass in both frames. Fasten glass tight with glacers three point, or better still with a square moulding the size of a rabbet; this will make a tight job. Place frames back to back. Fasten on one side two brass hinges, on the other two hooks.

The rest is very easy; place section of chart in which you are sailing under one glass and the section you need next under the other glass and all other parts of chart between.

F. J. BERNETT,
Jersey City, N. J.



Mr. Bailey's suggestions for handling charts on a small boat.

ready made from light basswood or cypress. The cabinet proper consists of an ordinary rectangular box, with hinged covers on top and front. If the front cover is fitted with a rigid brace of a sufficient length to hold it

size of a rabbet; this will make a tight job. Place frames back to back. Fasten on one side two brass hinges, on the other two hooks.

The rest is very easy; place section of chart in which you are sailing under one glass and the section you need next under the other glass and all other parts of chart between.

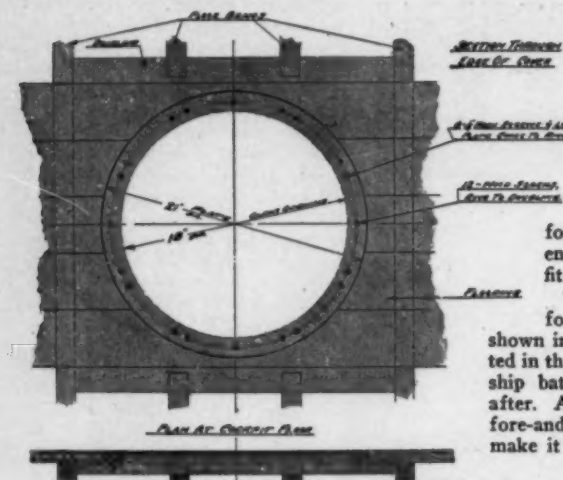
F. J. BERNETT,
Jersey City, N. J.

How to Build a Hatch in a Cockpit Floor Which Will Be Accessible and Water-Tight.
Several Detail Plans Giving All the Necessary Information for Building.

THE PRIZE CONTEST—Answers to the Third Question in the December Issue.

Joints Packed with Rubber.

THE purpose for which the hatch is to be used will determine the size of the clear opening. The opening necessary for access to inboard stuffing-box would be small, while access to reversing gear would be large. The size of opening and structural details of the boat will determine the size of the timbers necessary for strength and solidity.



Cockpit hatch of the deck-plate signed by Mr. Blair.

The principles involved in the accompanying sketch are general and easily installed in any boat.

It consists of a frame around the opening formed by fore-and-afters and athwart-ship battens, into which has been cut a groove (see Fig. 1). Rubber packing is fitted snugly in the groove of such a thickness that when the cover is in place the rubber is depressed about $\frac{3}{4}$ -inch, thus forming a water-tight joint. Discarded rubber belting, cut in strips to suit, will answer the purpose nicely. Around the edge of the hatch cover, which is built in the usual way, is fitted a beading so arranged that when cover is in place the beading will enter the groove without binding. The hatch cover should be built with sufficient clearance around the edges so that it will not bind when it becomes wet—from 1-16-inch to $\frac{3}{4}$ -inch clearance on the side will be sufficient.

The holding-down bolt or dog, as shown in Fig. 1, is made from a machine bolt, the head of which has been cut off. The bolt is bent and shaped as shown, and put in place; the nut screwed down until hatch covers come flush with the cockpit floor. The bolt is then marked and removed. Cut bolt off to length marked. A $\frac{1}{4}$ -inch

hole may now be drilled through nut and bolt and a pin fitted. The bolt is again placed in position, nut screwed down and pin inserted. The pin should be flush with the nut, so that a socket wrench may be used over the nut. The pin prevents the nut from turning on the bolt and thus allows the dog to be released. A rubber grommet and washer should be placed under head of each bolt. The number and placing of these dogs depends upon the size of hatch. Not less than four should be used. The distance between centers may run

from 12 to 18 inches, depending upon the stiffness of the cover. The size of bolt used in sketch is $\frac{3}{4}$ -inch diameter, with a square headed nut. This should should be large enough for all ordinary work. A socket wrench may be made

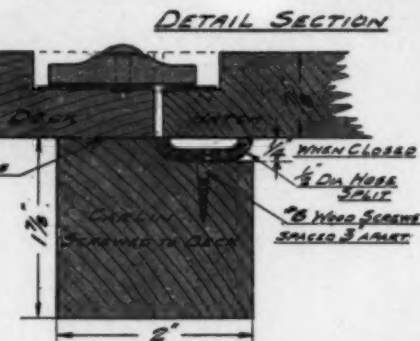
for a nut of this size by shaping the end of a piece of $\frac{3}{4}$ -inch gas pipe to fit nut.

The connection of the battens forming the frame of the hatch is shown in Fig. 2. The fore-and-after is fitted in the floors and fastened. The athwartship batten is mortised in the fore-and-after. A hole, bored at the junction of the fore-and-aft and thwartship grooves, will make it easier to insert the packing.

R. F. TAYLOR, Hampton, Va.

Simple and Cheap.

THE following article describes and illustrates the construction of a flush hatch of the simplest and cheapest form that complies with the requirements of the A. P. B. A., and one that will appeal to the average motor cruiser owner, who either builds his own boat or is compelled by lack of finance to do most of the fitting out himself. Of course, it is not claimed that this is the best hatch obtainable. If the owner has the money



Methods of keeping joints water tight in the hatch, submitted Mr. McDougall.

to spend, the very best thing to do is to purchase a circular manhole plate complete with grating, dogs, rubber gasket, etc., and install same in cockpit deck. These can be procured from any marine hardware company, with wood in center to match deck, and make a splendid finish, but the price to the majority is prohibitive.

This hatch only requires a few simple articles which can be purchased cheaply in any hardware store and can be constructed by any man of average ability in a few hours.

The sketch explains the method of fitting hatch, the size of which can be made to suit conditions.

The hose called for is cut in halves, then split and mitred at corners and screwed to carlin. Care must be taken to fit hose level and snug to hatch side to get tight fit when hatch is down.

ARTHUR McDougall,
Wilmington, Del.

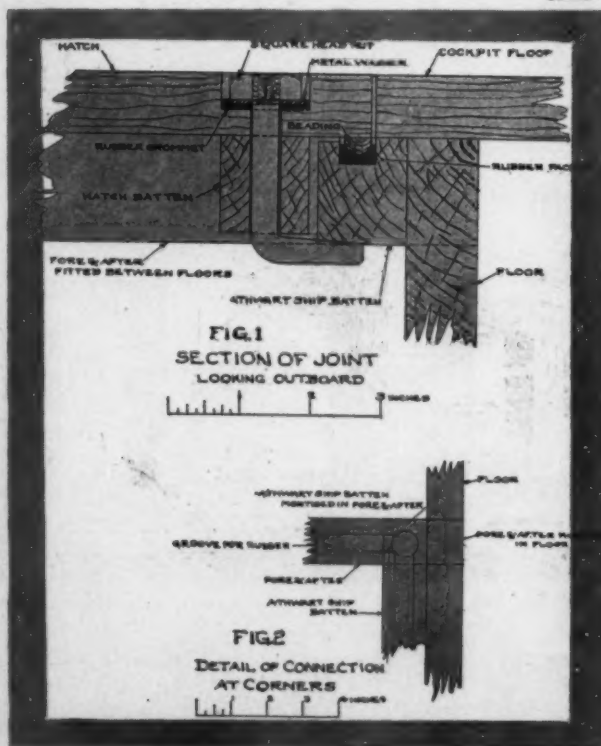
The Deck Plate Type.

THE accompanying drawing

THE accompanying drawing shows a simple type of flush water-tight hatch which is easily opened in a few moments, and if a little care is used in its construction it will be absolutely water-tight.

It is first necessary to decide the size of hatch required and to locate it on the cockpit floor, being careful to take into consideration the location of the floor beams. The drawing shows a hatch having a clear opening of 18 inches which

will be found sufficient in most cases, but, of course,



**Details of
mitted by**

design sub-Mr. Taylor.

will be found sufficient in most cases, but, of course,

may be made any size desired.

To construct this hatch secure a brass plate $\frac{3}{8}$ inch thick and 21 inches in diameter, a brass ring $\frac{3}{4}$ inch thick, 18 inches inside and 21 inches outside diameter, a rubber gasket the same size as the ring and $\frac{3}{8}$ inch thick, 12 flat-headed brass wood screws about No. 12 length to suit, and $\frac{8}{32}$ -inch brass machine screws $\frac{1}{2}$ inch long.

In the cover plate drill and countersink on a $19\frac{1}{2}$ -inch circle 8 holes to suit the machine screws, clamp the ring to the plate and tap holes for the screws through the ring. Then drill and countersink 12 holes in the ring to suit the wood screws, locating them so as to stagger the tapped holes.

Now, having marked on the cockpit floor the location of the hatch, cut a hole 18 inches diameter, fit a doubling of oak about the same thickness as the flooring around this opening and to the lower side of the floor, fastening together carefully with screws.

Next to the top of the floor cut a counterbore 21 inches in diameter and $\frac{1}{2}$ inch deep to take the ring, gasket and plate. Set the ring in thick white lead and screw down firmly, then on the ring cement the rubber gasket, having holes in it to suit the tapped holes in the ring. Now the cover plate may be screwed in place, making a perfectly flush, neat-appearing hatch.

This hatch can be easily made in a few hours, as it requires no castings or machine work.

C. L. BLAIR, Bath, Maine.

A Hatch with Scuppers.

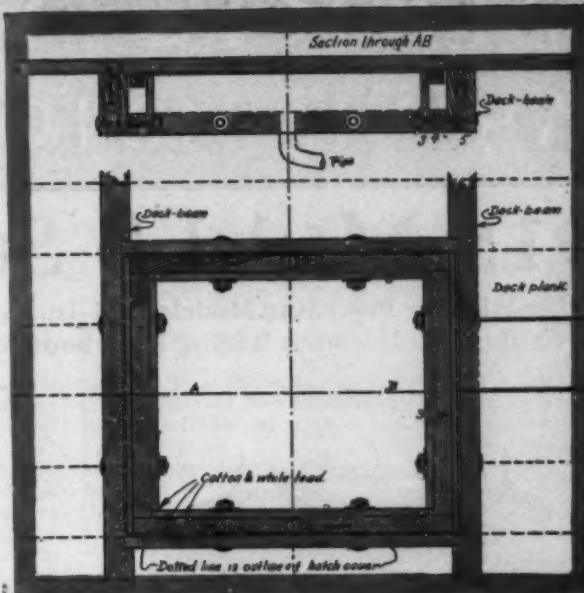
THE hatch illustrated in the sketch is very simple and easy to construct. The beams at the ends of the hatch are cut out and gutters set in as shown in the drawing. The butt should come in the center of the gutter. About the best way to make these gutters is to take half-inch lead pipe and cut it open and fasten in the groove.

The fore and aft partners are fastened to the ends of the deck beams, and are cut out, and the gutters are fitted the same way as in the end deck beams. To the partners are fastened shelves. The sawn-out hatch beams are notched out and rested on the shelves. The hatch beams may be of smaller dimensions than the deck beams.

At the lowest points of the gutter, as at the two after corners, a half-inch copper pipe is passed up through the beam and soldered to the gutter. The pipes lead to the scuppers, or, in case of a flush deck, overboard. In the cover is fitted one or two, as may be desired, flush-ring bolts.

The idea of this hatch is, that the water will drop down to the gutter and thence to the copper pipes and overboard. If a round hatch is desired, one can be built in the same manner. Outside of a screw man-hole plate, a hatch to be really flush and watertight must be constructed on this style. By referring to the sketch other structural details will be seen.

L. C. ROBERTSON,
Nyack, N. Y.

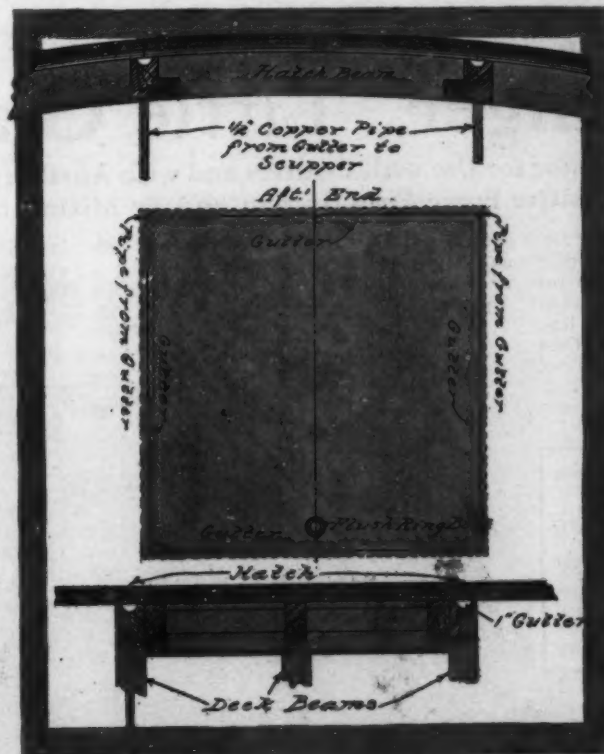


Mr. Parker's scheme provides for draining into the scuppers.

Two Kinds of Watertight Flush Hatches.

THE first hatch described is a sort of self-bailing hatch, flush with the deck and easily opened, since the hatch cover merely fits in loose. The cockpit floor must be of a sufficient height above the waterline, however, to allow of the installation of the scupper pipes shown in the drawing, the outlets of which should be above the water.

As shown, the length of the hatch opening is such as to slightly more than cover the inside distance between two of the floor beams.



Mr. Robertson suggests gutters below the joints for the collection of any water which may leak through.

If the floor beams do not come right, extra beams running athwart-ships can be installed, cutting out one or more floor beams if necessary. Then two fore and aft timbers (2, 2), the same depth as the floor beams (5, 5), are mortised and toe-nailed into them. Some square pieces (4, 4, 4, 4) are then set into the bottom of this rectangular frame, as shown, and then an inner rectangular frame is built in, as shown at (3, 3, 3, 3) in the drawing. This framework should come up nearly flush with the bottom of the cockpit floor. This work can be tightly set up by means of carriage bolts, but first some cotton and plenty of white lead should be laid between the joints. The seam where the floor boards meet the floor beams should be caulked or otherwise made watertight. It will now be seen that a watertight trough has been built around the hatch opening and any water coming in around the hatch cover will run into this trough. To carry this water away two scuppers are provided of lead pipe, which are run out through the side of the hull at, or if possible, above the waterline.

The hatch cover is merely built up of boards the size of the floor boards cleated with the cleats coming, if possible, inside of the trough, as shown in the drawing. This cover should fit as snugly as possible, but allowance must be made for the swelling of the wood when wet. Also, the cover should be weighted on the bottom side, for if the cockpit should ever fill up, the cover, if not weighted, would float up and spoil the watertight qualities of the cockpit.

The second arrangement shown consists merely of a brass cover-plate such as is used in this locality for fire-hose inlets in the lower floors of public buildings. The edge of this cover-plate is turned slightly tapered. A brass rim is provided to fit into the cockpit floor where it is fastened by means of screws or bolts. The inside of this rim is turned to the same taper as the cover, so that when the cover is in place a tight fit is obtained and no rubber gaskets, screws or bolts are needed.

To prevent water getting in through the loose handle usually provided with these plates a wooden block with openings to take the ends of the handle is fastened on the underside of the plate by means of brass machine screws. In my case I provided a larger wooden hatch cover surrounding this brass one; this was caulked down, but could be removed if a larger opening was needed under the floor than was afforded by the brass plate, which was about 14 inches in diameter. The large opening is, however, very seldom needed; only in case of extensive repairs to the stuffing-box or shaft.

The great advantage of both these hatches is that while they are watertight and flush with the floor they are instantly removable. Other arrangements are possible, of course, depending upon the type of boats and conditions of service but generally the two suggested above will be found to answer the requirements of any service.

H. H. PARKER,
Oakland, Cal.



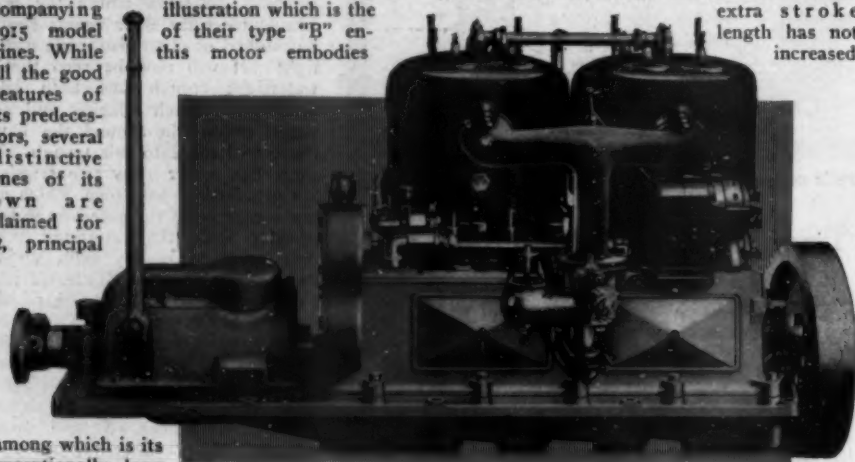
AMERICAN MARINE MOTORS



The 1915 Model B Sterling.

Having an Increased Stroke Length Over Preceding Models of $\frac{3}{4}$ -In., Giving $5\frac{1}{2} \times 6\frac{3}{4}$ -In. Cylinders. Made With Aluminum or Iron Base for Use with Racing Runabouts or Medium-Speed Cruisers.

THE Sterling Engine Co., of Buffalo, N. Y., have recently brought out the four-cylinder engine shown in the accompanying illustration which is the 1915 model of their type "B" engine. While all the good features of its predecessors, several distinctive ones of its own are claimed for it, principal



make the engine quieter and more economical in its consumption of fuel in proportion to power delivered, while the addition of this extra stroke length has not increased

the nature of refinements which make for general efficiency and satisfaction. The motor is built with either an aluminum or an iron base, making it suitable for two distinct types of boats, since with the aluminum base and lighter flywheel the revolutions are brought up to 1,200, giving a rated power of 67, while with the iron base the engine delivers 35 h.p. at 600 r.p.m. for medium-duty work. With the former construction the engine weighs 900 pounds, and with the iron base, 1,200. A 1912 model of the medium-duty type of this engine

Manufactured by the Sterling Engine Co., Buffalo, N. Y.

Rated Horsepower.....	35-67
Cylinders.....	Four, cast in pairs
Bore and Stroke.....	$5\frac{1}{2} \times 6\frac{3}{4}$ inches
R. P. M.....	600-1200
Weight.....	1200-900 lbs.
Cycle.....	Four

among which is its exceptionally long stroke. This long stroke of $6\frac{3}{4}$ inches to a bore of $5\frac{1}{2}$ inches has materially added to the power obtained, and, according to the manufacturers, has enabled them to

With aluminum base, this new Sterling is rated to deliver 67 h.p. at 1,200 r.p.m.

the total weight to any appreciable extent. There is nothing radical in the design of this new model, the changes being simply in

powers Thistle, the well-known 40-foot cruiser which has won so many cruising races in the last three years, and operating at about 700 r.p.m. drives her at a speed of $11\frac{1}{4}$ m.p.h. At 1,000 r.p.m., at which rate the aluminum base motor rates 55 h.p., the makers consider it an ideal power plant for a 28 to 35-foot runabout.

Strelinger "Little Giant."

A Two-Cycle, Three-Port Motor for Use with Cruisers and with Auxiliary Sail Boats Up to 35 Feet. Lubrication Effected by Positive Force Feed System and by Mixing the Oil with the Gasoline.

THE Strelinger Marine Engine Co., of Detroit, Mich., manufacture an extensive line of two and four-cycle engines for marine use, and in addition, a complete line of stationary engines ranging from $1\frac{1}{2}$ to 12 h.p., while one of the latest of their productions consists of a straight shaft direct-connected outboard motor, known as the Strelinger Portable Boat-Drive. The motor shown in this

for use with launches up to 28 feet and with auxiliary sail boats up to 35 feet, turning a three-bladed 15-inch diameter by 22-inch pitch propellor. The separately cast cylinders, which measure 4-

by $3\frac{1}{2}$ -inch stroke, are cast from fine close-grained iron with as great a percentage of carbon as can be successfully used. The connecting rods are of bronze, specially tested for strength and endurance, and the crankshaft is drop-forged from high carbon steel. Lubrication is effected by positive force feed and by mixing the oil with the gasoline.

Manufactured by the Strelinger Marine Engine Co., Detroit, Mich.

Rated Horsepower.....	10
Cylinders.....	Two, cast separately
Bore and Stroke.....	$4 \times 3\frac{1}{2}$ inches
Weight.....	245 lbs.
Cycle.....	Two

section is one of their line of two-cycle "Little Giant" general utility marine engines. This motor, like all Strelinger two-cycles, is of the three-port type, and the design of the crankcase is such that very high compression is obtained. Ignition is of the jump-spark type, and the commutator, which is waterproof, is mounted on the forward part of the front cylinder. This two-cylinder motor is rated to deliver 10 h.p. and the makers recommend it



Strelinger "Little Giant," one of a line of two-cycle engines in one and two cylinders, developing $1\frac{1}{4}$ to 20 h.p.

Grease cups are provided for the main bearings.

The Two-Cylinder 7 h. p. Palmer.

Having Crankcase Cast in Two Sections With Handhole Plates Allowing Easy Access to Interior.
Compression Relief Lever Provided for Easy Starting—Integral Multiple Disc Reverse Gear.

THE two-cylinder motor shown herewith is one of the NL type of four-cycle motors manufactured by Palmer Bros., of Cos Cob, Conn. This motor, like the 1, 3 and 4-cylinder models NL has cylinders measuring $4\frac{1}{2}$ inches bore and stroke, and it develops its rated 7 h.p. at 600 r.p.m. The cylinders which are cast separately, are of the T-head type, and the crankcase is cast in upper and

qualities, yet keeping it soft enough to prevent its cutting the shaft should oiling be neglected. The bushings are interchangeable, top and bottom, and can be removed and replaced in a short space of time. The push-rods are steel-hardened and ground with hardened roller and pin; the lifts are adjustable for wear. The camshafts are drop-forged with the cams integral, and the bearings for these phosphor bronze and are detachable.

A relief lever is provided to allow part of the compression to escape through the exhaust, making starting

easy. The exhaust manifold is jacketed, and the water is forced through the circulating system by a plunger pump. The oil pump is driven from one of the camshafts, and forces the oil from the base reservoir to fall over the gears and forward crank bearings. A constant level of oil is maintained in the base to be picked up by the connecting rods and forced against the cylinder walls.

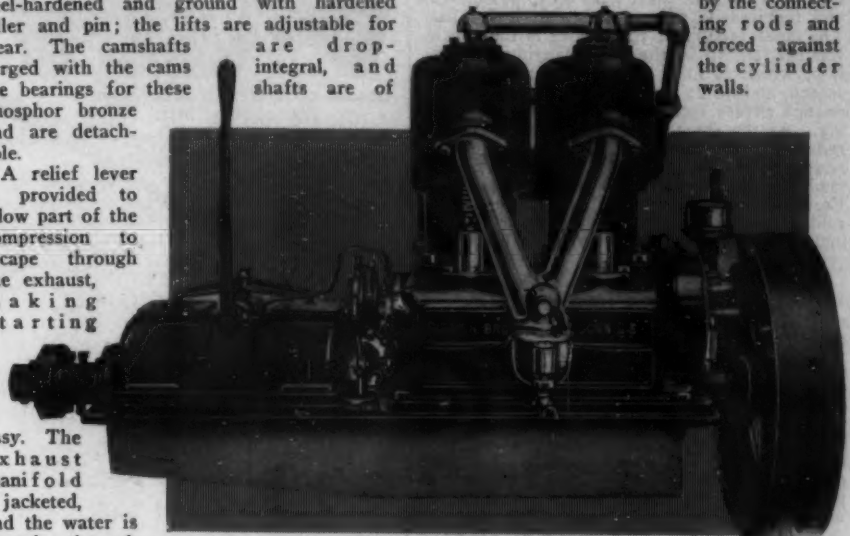
Manufactured by Palmer Bros., Cos Cob, Conn.

Rated Horsepower.....	7
Cylinders.....	Two, cast separately
Bore and Stroke.....	$4\frac{1}{2} \times 4\frac{1}{2}$ inches
R. P. M.....	400-600
Weight.....	500 lbs.
Cycle.....	Four

lower sections. The upper section of the crankcase has handhole plates running full length, allowing free and easy access to the interior of the base.

The crankshaft is drop-forged from nickel steel and possesses great tensile strength, while the connecting rods are drop-forged from high carbon steel and fitted with Parson's white bronze bushings. These bushings are cast in dies under high pressure, making the metal dense and improving the wearing

qualities, yet keeping it soft enough to prevent its cutting the shaft should oiling be neglected. The bushings are interchangeable, top and bottom, and can be removed and replaced in a short space of time. The push-rods are steel-hardened and ground with hardened roller and pin; the lifts are adjustable for wear. The camshafts are drop-forged with the cams integral, and the bearings for these phosphor bronze and are detachable.



Type NL two-cylinder Palmer motor. This type is also made in 1, 3 and 4 cylinders.

The Simplex Engine.

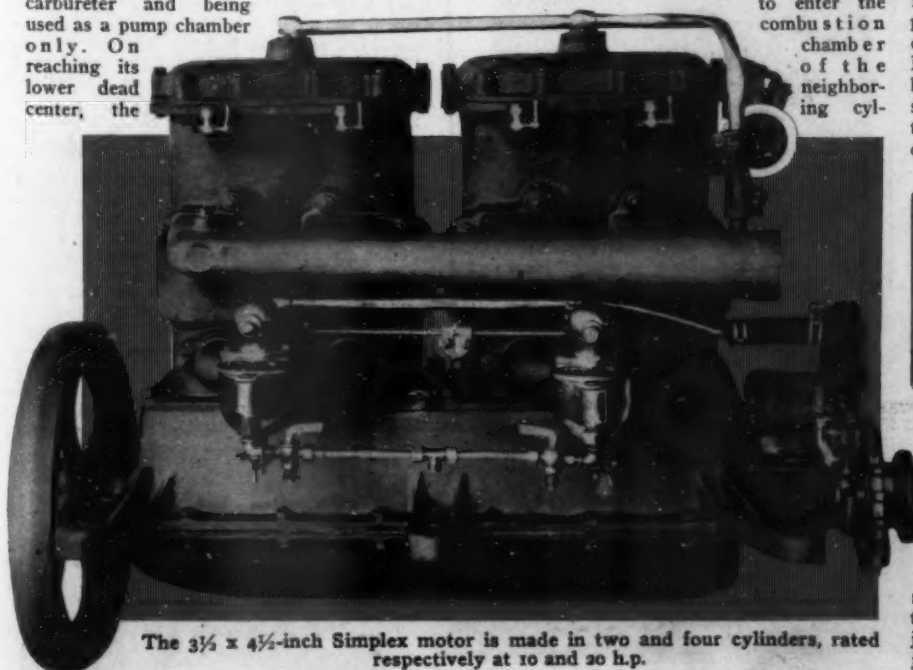
Wherein the Compression Chamber of One Cylinder By-Passes Its Charge to Its Neighbor.
An Interesting Two-Cycle Motor of New Design in Which Crankcase Compression is Eliminated.

ONE of the newest engines introduced to marine men is the special two-cycle Simplex, made by the Simplex Engine Co., of Detroit, Mich. This motor, which is made in two and four cylinders, developing 10 and 20 h.p., is of a type wherein crankcase compression is eliminated. The cylinders are bored to two different diameters, the lower and larger diameter receiving the gas from the carbureter and being used as a pump chamber only. On reaching its lower dead center, the

piston opens the intake port, drawing in the charge from the carbureter. When the piston has moved partly up, it closes the intake port by means of an extension or skirt on the piston, trapping the charge in the compression cylinder. As the piston continues on the up-stroke, it compresses the gas until the neighboring piston, now on the down-stroke, uncovers the transfer port, allowing the charge to enter the combustion chamber of the neighboring cylinder.

inder. Thus each pump chamber draws from the carbureter the charge for the neighboring cylinder.

Many advantages beside the elimination of crankcase compression are claimed for this new motor. For one thing, it is said that the oil in crankcase never has burnt or partly burnt gas from the combustion chamber mixed with it, reducing its effectiveness, while it is further stated that by means of the higher pre-compression pressure, a better scavenging effect is obtained in the combustion chamber. By using a high baffle plate on the piston head, and by placing the spark plug at the side, where the piston brings the last part of the charge to it, the makers have aimed at obtaining an engine which will run faithfully



The $3\frac{1}{2} \times 4\frac{1}{2}$ -inch Simplex motor is made in two and four cylinders, rated respectively at 10 and 20 h.p.

Manufactured by the Simplex Engine Co., Detroit, Mich.

Rated Horsepower.....	20
Cylinders.....	Four, cast in pairs
Bore and Stroke.....	$3\frac{1}{2} \times 4\frac{1}{2}$ inches
R. P. M.....	900
Cycle.....	Special two

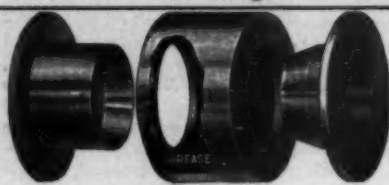
under all conditions and will throttle down well.

Given the simplicity in design of the two-cycle motor, the makers have further simplified their product by using all standard threads, and they say that their engine may be taken down right to the crankshaft bearings with two wrenches and a screwdriver. The cylinder head is detachable, and is also separable from the water jacket cover. The exhaust manifold is water jacketed.

New Things For MOTOR Boatmen

A New Stuffing Box.

The Watertite stuffing box is so designed as to eliminate all packing, all friction, and all water. It is made in shaft sizes up to 2½ inches, and requires no adjustment to fit it for use. The chief feature of this device is the grease retainer, shown in the accompanying illustration, which is filled at the beginning of the season, and needs no attention thereafter, only enough grease escaping to lubricate the bearing. As the shaft runs in grease, friction is reduced to the minimum, giving the effect of added power to the motor. This device is made by the Watertite Bearings Co., of 51 East Baltimore Avenue, Detroit, Mich., and is sold at prices ranging from \$1.80 for the ¾-inch size, up to \$14.75 for the 2½-inch size.



Grease container of the Watertite stuffing box.



L. W. Ferdinand's combination melting pot and paying ladle.

Jeffery's Paying Ladle.

L. W. Ferdinand & Co., of 201 South Street, Boston, Mass., are marketing Jeffery's patent combined melting pot and paying ladle, which is designed to render the task of paying a boat's deck as easy for the amateur as for the expert, and also to do the work more quickly and neatly than can be done by any other method. The device consists of a glue pot heated by a kerosene vapor torch, and a paying ladle, the whole being mounted on wheels, so that it may be readily drawn along the seam of a deck. The paying ladle is provided with a device for controlling the flow.

A New Hoisting Winch.

The Original Gas Engine Co., of Lansing, Mich., of which Mr. R. E. Olds is the chairman, have recently brought out a little gasoline motor-operated, self-contained winch for use in hoisting tenders on deck. The motor is a single-cylinder 3 h.p., air-cooled machine, geared 60 to 1 to the drums. These 3½"x6½" drums have a normal lifting speed of 10 to 25 feet per minute.



Motor-operated hoisting winch, made by the Original Gas Engine Company.

Hand V-Bottom Boats.

The Standard Auto-Boat Co., of 50 Church Street, New York, have effected an arrangement with Wm. H. Hand, Jr., whereby they are offering two models of Hand V-bottom boats, either in completed or in K. D. form. The models manufactured are a 20 x 4½-foot, which, powered with an 18 h.p. motor will make about 18 m.p.h., and a 25 x 5-footer with 25-30 h.p., which will make a speed of 25 m.p.h. Furnished complete, the models are cedar-planked, brass screw-fastened, with mahogany decks and trim, and sprung, leather upholstery. The boats are also offered in K. D.

Electric Running Lights.

The Sutcliffe Madsen Co., of 136 Liberty Street, New York City, are offering to motor boatmen a new line of electric running lights,



Sutcliffe Madsen's self-contained running lights for Class I boats.

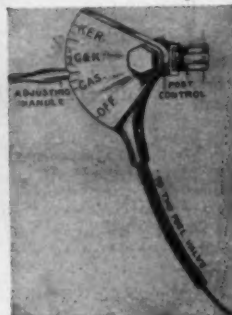


Grossman "One-piece" spark plug.

the distinguishing feature of which is that the lights do not depend for their current supply upon a distant source, but take it from a dry cell contained in the lamp itself. In the stern light a switch is provided, and the light is so designed that it may be used as a mast light or mounted on the pole at the stern. The combination bow light for Class I boats, contains two cells, which are used alternately.

Ferro Oiling System.

The Ferro four-cycle motor, manufactured by the Ferro Machine & Foundry Co., of Cleveland, O., is provided with a new force-feed lubricating system, a plan of which is shown in the accompanying illustration. The oil is drawn from a water-cooled reservoir by a gear pump and forced under 5 to 25 lbs. pressure through a cast-in pipe running the entire length of the crankcase. Drilled passages carry the oil from this pipe to crank- and camshaft bearings and to the valve rocker arm shaft. From these main bearings the oil is fed, still under pressure, through the drilled crankshaft to each crankpin. The valve rocker arm shaft is hollow, and supplies the rocker arms abundantly and the valve stems as well. The piston, piston pins, cams and pushrods are oiled by the spray thrown off by the crankpins, the amount of oil varying according to the motor's speed and the resulting pressure in the system.



Control member of the Breeze two-fuel valve adapter.

Breeze 2-Fuel Valve.

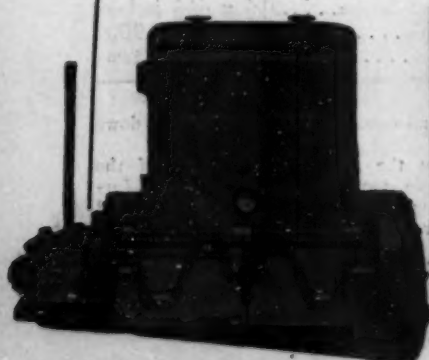
The Breeze Carburetor Co., of Newark, N. J., have put on the market a device whereby kerosene and gasoline may be mixed and used in the best proportion for economy. This adapter valve is fitted to any carburetor and is adjusted from the seat, and it is so designed that while the motor is started on gasoline, this fuel may be turned off and the kerosene admitted when the engine is hot until the proper mixture is obtained. The cost is \$5.

"The Onepiece" Plug.

The Emil Grossman Manufacturing Co., of Bush Terminal, Brooklyn, N. Y., have introduced a new spark plug known as the "One-piece," which has been specially designed to meet the conditions arising from higher speed motors and increased compression resulting from long stroke and relatively small bore. Cement is poured into the space between the substantial porcelain and the internal threads of the shell, and the entire plug is then baked by a secret process, no bushing or gaskets being used. The plug is sold for 75c.

The Benjamin Horn.

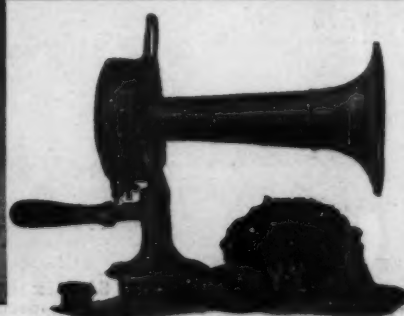
This marine signal is designed to operate on five dry cells or a six-volt storage battery. All exposed parts are of solid polished brass, eliminating all possibility of rust, and the Swedish steel spring diaphragm is heavily copper-plated and enameled. The horn mechanism is entirely protected from the elements. The horn is sold by the Benjamin Electric Co., of 114 Liberty Street, New York, for \$10.



Oiling system of Ferro 4-cycle motor.



Type of Hand V-bottom boat, made in K. D. and completed form by Standard Auto-Boat Company.



The Benjamin electric marine signal.



Sentinel pyrometer cylinders for exhaust heat tests.

Sentinel Pyrometers.

A new method of measuring temperatures wherever heat is applied has just been developed by the Carl Nehls Alloy Co., of Detroit, Mich. This consists of different kinds of metallic salts which are made into molecular mixtures that will melt down at different temperatures throughout the range between 425° and 2,425° F. To use these effectively they are made in one form in solid cylinders, each one of which is wrapped in paper on which is printed the correct melting temperature in degrees Centigrade. Sentinel pyrometers may be used in melting metals, and in gasoline engine exhaust tests.

Caille 5-Speed Portable.

The Caille Perfection Motor Co., of Detroit, Mich., are introducing the Caille Five-Speed 2 h. p. outboard motor, which has two speeds forward, two reverse and neutral. Speeds are changed by a push-button control. Pressing the button located at the end of the steering handle releases the ratchet lock and enables the operator to change the speed or direction of the boat in an instant without in any way altering the speed of the motor. In addition to this new feature, the 1915 Caille, which weighs only 50 lbs., is provided with a high-tension waterproof magneto built into the flywheel, self-lubricating system, etc.

Sterling Siren Horn.

The construction of the Sterling electric siren horn is very simple and consists of a small high-speed motor enclosed in a dust and waterproof housing, to the armature shaft of which motor is affixed a 4-inch aluminum fan or rotor which when operated at high speed, and by cutting off the air through air ports in the housing, produces a far-carrying siren note. The horn operates off a six, eight or twelve-volt storage battery. It is made by the Inter-State Machine Co., of Rochester, N. Y., and is sold for \$35.

The Water Craft Horn.

The Water Craft Co., of 221 Fulton St., New York, have just introduced a new horn, the outstanding feature of which is the arrangement for fastening it to the deck. This is effected by a male and female joint, the deck plate, which is screwed permanently to the deck being the male member over which the female member attached to the horn is slipped and secured by a wing nut. By having the deck plate the male member, no possible chance is given for rain to collect and cause trouble when the horn is not in place. The horn may be swung in any direction to project its signal with the best effect, and it may be easily removed and stored in the cabin when the boat is not in use. It operates off 5 dry cells or any 6-volt storage battery. Made all in brass or in black and brass it sells for \$6.

Blakely Motor Rowboat.

The Blakely Engine Co., of Muskegon, Mich., are offering at this time a 15-foot V-bottom rowboat in combination with their 2½-h. p. 3x2½-inch outboard motor. The boat which has a beam of 4 feet has about 3 inches deadrise amidship and an inch and a half at the stern. The planking is of half inch white pine, and the ribs and crosspieces are of oak. This boat is made with the idea of combining safety and comfort with fair speed.



The Mullins' steel detachable motor.

steel detachable rowboat.



The Caille 5-speed outboard motor.



The Hyde No-Weed.



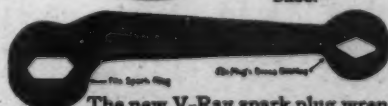
The Sterling electric siren horn.



Remy distributor and transformer coil.



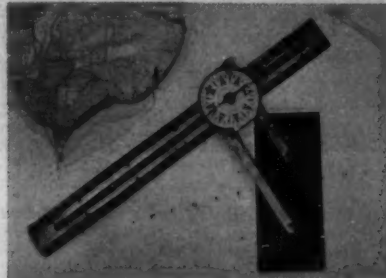
The new Water Craft horn which has a unique swivel base.



The new V-Ray spark plug wrench.



The Blakely outboard motor and rowboat.



The Sherman nautical delineograph for plotting chart courses.

V-Ray Plug Wrench.

The most recent contribution to the accessory field of the V-Ray Mfg. Co., of Marshalltown, Ia., is a unique double end, one-end-offset wrench which is sold for 15 cents. The offset end is designed for the ready removal of spark plugs that are screwed into a recess in the motor, as is the case with so many modern engines. The other end will fit the bushing of practically any plug on the market, making easy the disassembling of plugs.

New Motor Rowboat.

The W. H. Mullins Co., of 182 Franklin St., Salem, O., are now making a steel 14' x 4' rowboat which has been designed for use with outboard motors. Features of its design include a hull so shaped that it will ride on an even keel, and not bury at the stern, one that will steer readily and have stability and steadiness with a good bearing surface at the stern to prevent its rolling and becoming unmanageable. It also has good depth, ample beam, comfortable seating arrangements, and speedy lines. The stern transom is of special construction to withstand the vibration of the motor.

Nautical Delineograph.

This device is made by Eugene M. Sherman, Box 3, Bellevue, Wash., to provide a means whereby the inexperienced person may plot chart courses and take bearings with accuracy and dispatch. It consists of a compass disc mounted on an 18-inch ruler and a rectangular plate attached thereto. A notch on the disc marks the true north. In use the ruler is placed on the chart on the course desired, and the edge of the plate is lined up with the nearest parallel. When the north index is moved to the right or left of the notch in accordance with the number of degrees variation east or west as indicated on the chart, the magnetic course will be indicated by the hand over the dial. Compass deviation may then be allowed for and the hand will point to the proper course to steer. This handy device may also be used to indicate a ship's magnetic bearing.

Hyde No-Weed Propeller.

The Hyde Windlass Co., of Bath, Me., have recently put on the market the Hyde No-Weed type propeller which is of the true screw type, and like the Hyde Turbine propeller is made with the guarantee that should a blade be broken off through striking any object in the water, the propeller will be replaced. The list price for this new propeller is the same as that of the three-blade Hyde Turbine type.

Remy Devices.

With the advent of electric generators for lighting purposes, the Remy Electric Co., of Anderson, Ind., have developed an ignition system utilizing current from a storage battery which is kept charged by the generator, and three forms of such devices have been evolved. One of these, shown in the accompanying illustration, consists of a distributor and transformer coil mounted on a base of magneto dimensions, allowing it to be mounted in the space formerly taken by the magneto.

From MOTOR BOATING Readers

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case and return postage enclosed to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Boat to Go to Florida In.

To the Editor of MoToR BoatinG, Sir:

I am considering the purchase of a twenty-five-foot motor boat, designed to meet the requirements of a trip to Florida. Would like to know what powered motor should be installed in a boat of this size carrying four passengers, to average eight miles an hour. Also the number of miles approximately to each gallon of gasoline. What route would you deem advisable in sympathy with our plans?

B. J. SCHARFER.

[A 10 h. p. motor having a speed of not over 600 r. p. m. would probably work out the best in your case, and give you the desired speed of eight miles an hour. This motor should preferably be of a heavy or medium-duty type, and probably one of two cylinders and either two or four-cycle will give good results. The number of miles that it is possible to obtain from a gallon of fuel depends upon the particular motor chosen, as some models are considerably more economical than others. However, the average to h. p. two-cycle, two-cylinder motor should give you approximately four miles per gallon of gasoline installed in a 25-foot boat having a speed of eight miles an hour.

In regard to the proper route to follow, we would ask you to refer to pages 15 and 16 of the October, 1914, issue of MoToR BoatinG, where this route was described in detail.]

Hydroplane Running Below Speed.

To the Editor of MoToR BoatinG, Sir:

I have a stepless hydroplane equipped as shown below and have never been able to get anywhere near the speed claimed for the boat by the designers. Length of boat, 17' x 3' 10", stepless hydroplane, lightly constructed; planking, cedar, 3/4"; 2 rudders; motor, 2-cycle, 4 cylinders, 4 x 4; r.p.m., 12-1400; h.p. (manufacturer's rating), 26-31; weight, 395 lbs.; clutch, one way, weight 16 lbs.; length of engine and clutch, 48"; propeller, 3 blades, 16" x 28"; propeller shaft projects 9" aft of stern.

Have also tried a two-blade wheel 14 x 23", placed just under stern of boat.

What, in your opinion, might be the maximum speed of this outfit, and what are your suggestions to obtain such a speed?

C. V. C., New York City.

[In regard to your 17-foot stepless hydroplane, the speed of such an outfit, provided it is of good design, depends principally upon the power of the motor and the weight of the hull and power plant in racing trim with crew on board. This, of course, assumes that a propeller of the correct diameter and pitch is used, and that the weights in the boat are so distributed for the greatest efficiency.

You have not given us the weight of your outfit or given us any idea as to whether it is of light or heavy construction, but we believe an outfit of this type should weigh somewhere between 1,600 and 1,800 pounds. At the former weight, the maximum speed with a motor developing from 30 to 35 h.p., should give about 26 miles an hour, and a boat weighing 1,800 pounds, with crew on board, should develop about 24 miles an hour. We believe a propeller 15 inches in diameter by 28 inches pitch, having 2 blades each about 4 inches wide, should work out the best for your installation.]

In Defense of the V-Bottom.

To the Editor of MoToR BoatinG, Sir:

Dr. Pedersen's letter in your January issue interests me, and I would appreciate an opportunity to answer his criticisms of V-bottom boats, and to come to their defense.

The purpose of the A. P. B. A. rules is, of course, to bring about a fair system of handicapping, but more than that, these rules or any others, should put a premium on efficiency or the art will not advance. Experiments with models in the government tank at Washington have shown that certain V-bottom models are faster than those of other designs of the same displacement. If this is so, the efficient V-bottom should be given the benefit of its efficiency provided it is not a freak. Experience with many types of hulls has convinced me, among many others, that the V-bottom boat is not a freak, but that it is not only fast, but more seaworthy than a boat with a convex bilge section. It is decidedly a model which has come to stay.

The displacement of a boat should, of course, be an element of its rating. The only way of getting a boat's actual displacement is to weigh it. This has proven to be an impracticable proposition. As an approximation, the l.w.l. is multiplied by the area of the midship section, which area may be taken now at any point desired by the owner. The present system is as fair to one type of boat as to another. There is no more chance to bulge out a V-bottom boat at the point of measurement than any other.

Dr. Pedersen's impression that the sectional area of a V-bottom boat is almost nil at 25% and 75% of its length is an error. I have before me a plan of a V-bottom cruiser designed by William H. Hand, Jr.,

and dated January, 1915, which may, I think, be accepted as the latest and best practice in this type of design. From it I have scaled the cross sectional areas at three points: 25%, 50% and 75% of the length of the boat, measuring aft from the stem, as suggested by Dr. Pedersen, with this result:

		B.W.L.	DEPTH 3/4 IN.	AREA
25%	Station...	4.000'	.516'	2.064 sq. ft.
50%	" ...	6.875'	.56325'	4.5116 " "
75%	" ...	6.4375'	.5633'	3.6211 " "

These figures show that the proportional displacement areas at these three stations is about the same as that usually found in other types of boats, and that there is not an "artificially wide midship section." Dr. Pedersen's scheme of taking the average of these sectional areas would not raise the ratings of the V-bottom boats to any greater extent than it would those of what he calls "normally-built older models."

The matter of taking engine revolutions into consideration in computing horsepower is the only proper thing to do. Personally, I think 10% is too wide a margin of variation, for it puts the temptation in one's way of claiming less power than is actually developed, but we should give every man the credit of being honest until it has been proven that he is not. The matter of over-engining a boat is well met by the A. P. B. A. provision of an "express cruiser" class into which will go the particular V-bottom cruiser of which our friend complains.

The thing that has most injured motor boat cruiser racing in the past is the fact that there has been little incentive for any one to build a fast cruiser when he has known that although he may finish first in a race, the prize may be awarded to another who finishes hours later. This would not be so bad if the fast boat had an equal chance with the slow one, but this has not been the case. The normal solution of the problem is to combine a hull and a power plant which will be as efficient at high speeds as the slow boats, and the properly-powered V-bottom boat has, in my humble opinion, shown itself capable of meeting these requirements without sacrificing seaworthiness, comfort or attractiveness of appearance.

E. W. MARSHALL.

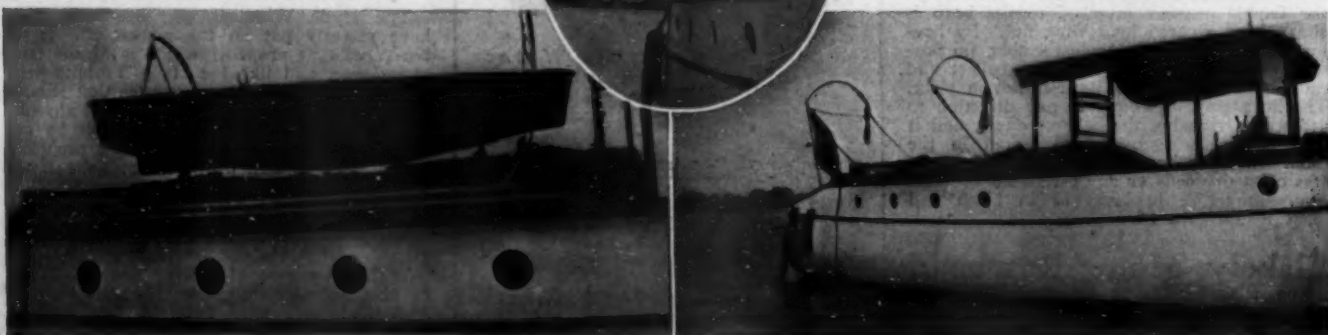
Five-Dollar Davits.

To the Editor of MoToR BoatinG, Sir:

Five-dollar davits can be made and put on any flush deck in a couple of hours, by most any amateur motor boatman. The special feature of this davit, is, that the shank does not set down into the cabin, and it has no fastenings on the side of the hull. Bend the pipe by putting one end in the crotch of a tree, and a perfect bend can be obtained without cracking off the galvanizing.

- List of fittings:
 2 pieces of 1 in. galv. pipe 7 ft., threaded both ends.
 1 piece of 1 in. galv. pipe 10 ft. long.
 2 1-inch galv. tees.
 1 1" x 3" nipple.
 4 galv. 1-inch pipe hangers.
 2 galv. 1-inch eye caps.
 2 No. 2 bronze deck straps.
 2 pieces 5/16-inch bronze cable 3 1/2 ft. long.
 2 3-inch galv. cleats.

P. C. WARDE, N. Y. C.



Davits for a small cruiser which can be built at a small cost.

Effect of Shaft Inclination.

To the Editor of MoTOR Boating, Sir:

On page 27 of a recent issue of MoTOR Boating I note an article by "R. G. S., Hampton, Va.," in which he states that the downward inclination of propeller shaft produces a change in the pitch of the propeller blades, the pitch increasing on the descending blades and decreasing on the ascending blades. This is quite fallacious, for just the opposite is true. The steering is affected not so much by the difference between upstroke and downstroke as by the difference between the working of the bottom stroke and the working of the top stroke. As is well known, most of the movement of the water into the propeller blades is centripetal, that is, from the blade tips, toward the hub, not from forward of the propeller.

When the propeller shaft is inclined downward this centripetal flow is on the bottom stroke, strongly assisted by the forward movement of the boat, while on the top stroke it is retarded. Thus the down stroke gives very much more resistance on the bottom of the stroke, which causes a sort of "paddle-wheel traction" to set up which tends strongly to carry the stern of the boat either to the right or left, according to whether a right hand or left propeller is used. The fact of there being a greater pitch on the ascending blades does have a tendency to affect the steering of the boat, but this tendency is opposed and overwhelmed by the more powerful "paddle-wheel traction." This tendency of the greater pitch of the upstroke to affect the steering of the boat would cause the boat to veer to the side opposite the side on which the greater propeller blade pitch is, just as a canoe tends to veer to the side opposite that on which the stronger paddling is being done. But, as I said before, this tendency is opposed and overwhelmed by the more powerful "paddle-wheel traction" which affects the steering in just the opposite way from what would take place were the paddle-wheel traction imperative. There are many varying phenomena connected with the very complex matter of the behavior of both marine and aerial propellers. Some of these principles work with one another, some work against one another. Many of these I have proved to my own satisfaction, but I have not as yet demonstrated all of them, and so I shall not here discuss them.

Oftentimes this paddle-wheel traction is present even where there is no downward inclination of the propeller shaft. This is due to the fact that the bottom stroke works in more solid water than does the top stroke.

Of course, as "R. G. S." says, there is an unbalancing of the propeller due to the inclination at which the propeller shaft works, and that this unbalancing is a serious source of vibration; but this unbalancing and its vibration takes place in a way just opposite to what he supposes, for a few moments' careful thought should convince anyone that the pitch does not increase on the downstroke of propeller with downwardly inclined shaft.

Automobile Motor for a V-Bottom Runabout.

To the Editor of MoTOR Boating, Sir:

I now have under construction an 18' x 4', 10" V-bottom runabout. The frame is of light construction with $\frac{1}{4}$ of an inch cypress planking.

I have purchased a 30 h.p., 4" bore (and I am almost sure it has a 4" stroke; if not 4" stroke, it is $4\frac{1}{2}$ " stroke) Maxwell automobile motor. I expect to put this motor in the hull above mentioned, and do you think that this outfit would work well? What size propeller should I use to get about 900 to 1,000 r.p.m.?

This engine has an aluminum base. Will salt water have any effect on it?

D. D. A., Jr., Brunswick, Ga.

[We should expect that you would obtain a speed of about 20 miles per hour with a boat of this type if you obtain fully 30 h.p. at 1,000 r.p.m. We would suggest a wheel having 2 blades 17 inches in diameter by 27 inches pitch.

We would advise you to go very slow in the matter of making your final choice in regard to an automobile motor for your boat. While some automobile engines may be suitable for marine use, yet as a general proposition they are not unless a large number of changes are made in them, and even then there are some features which marine service necessitates which are never found in automobile motors.

In order to use an automobile motor in your boat successfully, you must choose a type suitable for your hull. Of course, the hull should be made as light as is consistent with the necessary strength. In regard to the motor,

the main bearings should be strong enough to withstand the continual hard service to which a marine motor is subjected, and should be preferably one bearing between each two crank-pins. The oiling system should be looked into so that when the engine is set on an angle in the boat the splash system will give the necessary lubrication to the moving parts and not allow all of the oil to settle in the lowest part of the base. Automobile engines are designed to set level or nearly so, while marine motors seldom are set level. If the motor is not to be run at as high speed



On a cruise with a Ferro outboard motor.

in the boat as that speed at which it was designed to run in the car, then the valve and ignition timing may have to be changed somewhat, and even the compression reduced for the lowest speeds. The flywheel on an automobile engine is generally at the clutch end of the motor, which must be taken into consideration when placing it in the boat, and also that the end connected to the propeller shaft is of sufficient strength to transmit the load. A



Pirate, whose speed was greatly reduced when her length was decreased.

flywheel of light weight should not be chosen.

The cooling systems in marine and automobile motors are radically different. The thermo-siphon or small cooling pump will have to be replaced by one of larger capacity and capable of pumping against an increased head. The method in which the motor can be attached to the bed is another point which you must look into. Many automobile motors are

bility in the majority of engine installations in runabouts.

In automobile work generally no thrust bearing is required, but one must be used in marine practice. Probably a water-cooled manifold will be necessary in place of the air cooled ones. The automobile engine runs best when fairly hot, but in marine practice the motors are kept much cooler. This has an additional advantage if the motor is installed in an enclosed cabin.

We believe if you are careful to consider the above mentioned points in the choice of your

motor that you will be able to obtain satisfactory service with an automobile motor, but if you do not care to go into it to such an extent we would strongly advise you to stick to the old reliable marine motor.

In regard to an aluminum base, we do not believe that salt water will have any detrimental effect on this, as many marine motors today are built with aluminum bases. However, salt water does have some tendency to disintegrate certain alloys of aluminum, but this subject is now quite well understood by motor builders and properly taken care of in the metals used in the base.]

Important Little Details.

To the Editor of MoTOR Boating, Sir:

A matter that is given little or no attention by the average motor boat owner and one that affects the general appearance of his craft to no small degree is the length and angle of the bow flagstaff.

How often one sees a good-looking boat spoiled in appearance by the fact that the bow staff towers from the deck to a height beyond all reason; but what becomes more distasteful to the eye is the rank angle at which the staff is inclined.

Generally speaking, the height of the staff above deck should be three-quarters of an inch to every inch of freeboard at bow; while as to the inclination, there should be absolutely none, for the staff should be plumb when the boat is at rest and on an even keel.

Insignificant as these details may appear, by putting them into effect it will be found that your boat presents a more shipshape appearance.

F. I. C., New York City.

Cuts 2 Feet Off Hull. Loses 12 Miles in Speed.

To the Editor of MoTOR Boating, Sir:

I am a constant reader of your magazine and take especial pleasure in reading your trouble columns. I would ask if you will kindly tell me the fault with my motor boat.

I have owned a 3-cylinder, 2-cycle, $3\frac{1}{2}$ " bore by 4" stroke motor, installed in a light hull for over a year. The hull is of about $\frac{1}{4}$ " cedar, 25 feet by 45 inches. I am turning a 15" B. & B. wheel, 24 pitch, at about 970 r.p.m., and make nearly 15 miles per hour with outfit.

My hull is torpedo stern, as you can see from sketch; also the changes I have made in same. I have cut stern off about 2 feet on account of a bad leak, and as I could not have enough room on bottom for my propeller, I have placed it back of stern, with about 3 inches extending above bottom lines of boat, the propeller being about 4 inches back of transom, so when I started motor the boat would not make over 3 miles per hour, and there is quite a commotion in the boat's wake, and I am positive that the clutch is not slipping.

What is the reason? Ought there be a squab-board over the propeller?

Is the churning caused by not having the propeller under the boat?

I am using same propeller, etc., same as before.

I had heard the clearing stern with propeller would help the speed, but it doesn't seem to work in

my case.

Since writing the above I have tried a patented propeller 18", 31" pitch, and, although it is entirely too large for my engine it gives me nearly all my old speed (15 miles). It is built on a new principle, an invention of a local man, and is designed to avoid slippage by having a bend around the rim to hold water against blades, and not let it churn off of tips of blades. If any of your readers desire further information, I shall be pleased to give it.

W. B., Parkersburg, W. Va.

Autowin IV, owned by Mr. Edwin S. Webster, of Boston, doing 40 m.p.h. in a storm. She is a single-step hydroplane 26' x 7', equipped with a 180 h.p. Sterling.

attached in their foundations high up, while marine motors are generally attached to the foundations near their base.

The crank case plate of an automobile motor is at the bottom of the base, while those of marine motors are at the side. You can readily see the disadvantage of being obliged to get into the base from the bottom. Needless to say, this would be practically an impossi-

YARD AND SHOP



View in the machine shop of the Sterling Engine Co., at Buffalo, with a battery of power lathes in the foreground.

Kermath Catalogue.

The Kermath Mfg. Co., of Detroit is issuing a little catalogue covering the Kermath 50 h.p. marine motor. There are two half tone cuts and two sectional drawings together with very full text descriptions of the plants.

Schubler Folder.

The Wheeler & Schubler Co., of Indianapolis, are putting out a large size, colored folder, pointing out the triumphs achieved in the motor field, marine and land, by the Schubler carburetor in the past year. The records made by Curtiss flying boats, equipped with Schublers, is pointed out, and attention is called to the fact that the America, the flying boat that was to make the flight over the Atlantic, was equipped with this type of carburetor.

Willard Fire Exaggerated.

A small fire recently took place at the factory of the Willard Storage Battery Co., in Cleveland. The extent of the damage has been grossly exaggerated and the company desires to state the true aspect of affairs. The fire took place in a small temporary wooden structure, erected to take care of the overflow until the company removed to its large new modern plant, which is just completed in another section of the city. The temporary structure was being used for rolling lead plates for use in railroad car lighting, and the fire will cause a few days delay on orders in this department, but in no other way will it effect the company's output.

L-A Catalogue.

The Lockwood-Ash Motor Co., Inc., of Jackson, Mich., are issuing a neat little leaflet describing the L-A rowboat motor. There are two cuts of this diminutive power plant with full descriptions. The L-A rowboat motor sells for \$54.75, freight

prepaid to any part of the country that may be desired.

S-P Vaporizer Price.

The S-P Vaporizer Co., Inc., of New York City, desire to call attention to the fact that in the January issue of Motor Boating on page 54, the old price of the S-P vaporizer \$3, is given instead of the present price, which is \$5.

Bosch News.

The December issue of the Bosch News has a very significant and interesting article on the fact that Bosch magnets are "made in U. S. A." From the fact that Bosch magnets originated in Germany and bear the name of Dr. Robert Bosch, their German inventor, it has been believed by many that the device is a foreign one. The Bosch people desire to repeat, what is known to most of the trade, that the Bosch magnets sold in America are manufactured in the Bosch factory at Springfield, Mass.

Kyanize Spar Varnish.

The Boston Varnish Co., manufacturers of Kyanize spar varnish, are proud of their record as progressive business people. There is one particular feature of their product which deserves especial mention and that is the package in which it is sold. The Kyanize can is triangular in shape, which is not only a distinctive form, but offers positive advantages of utility. The spout is placed at one of the corners of the triangle and this enables the user to drain the last drop of varnish out of the can. When one is using a considerable amount of spar varnish, the residuum left in a number of cans is a very considerable item of expense. The shape of the Kyanize can would enable the user to identify the product, even if all labels had been soaked off.

New Enameling Plant.

The Finkling Enameling Corporation of Long Island City, New York, has lately occupied its new and fully equipped enameling plant at Second and Webster avenues. Complete equipment is installed for enameling, japanning and painting by the new Radio process of scientific heat treatment and air brushing. The ovens have a large enough capacity for any class of work and the company makes a specialty of enameling motor boat cylinders and accessories.

Ferro Progress.

In this department we are showing two pictures, one that of the Ferro Machine & Foundry Company's plant in 1905 and the great factory occupied by the concern today. It is an astonishing growth and one of which the Ferro people are justly proud. They call attention to the fact that by the improvement in their manufacturing facilities, they are able to make a remarkable reduction in prices on the two-cycle line and yet market it without splitting a hair in its quality, in fact that certain minor improvements have been made in the engine.

The Use of Glue.

L. W. Ferdinand & Co., of Boston, Mass., in a little leaflet recently issued, give some interesting facts regarding the use of their well known marine glue. They state in the beginning that 14 pounds of their

extra quality Jeffery's marine glue will run from 300 to 350 feet of seam $\frac{1}{4}$ of an inch deep by $\frac{1}{4}$ of an inch wide. If properly used and not overheated, it will last from 4 to 6 years in a seam and has been known to last 10 to 12 years. When carefully applied to a dry deck, it is stated that the glue will never leave the sides of the seams. The Ferdinand company is offering a new booklet to all interested and will be glad to send it on application. A small cut of this timely publication, coming as it does, at fitting-out season, will be found on page 44 of this issue.



E. H. Allen, who is now special sales representative of the Scripps Motor Co., of Detroit.



Chas. E. Miller, the pioneer leader, who is extremely optimistic on the trade outlook.



Three views of the Bruas, Kimball shops in New York. Oval above: some of the machinery used in making new parts, rebaring, etc. Left: corner of the well equipped shop in which engines are rebuilt. Right: another corner of rebuilt engine department, giving idea of number of engines on exhibit.



Kermath Testimonial.
The Kermath Mfg. Co., of Detroit, Mich., is very proud of a letter recently received from one of its customers. The essential part of the letter follows:
"Kindly ship to us by express six piston rings for engine No. 1992.
"It might be of interest to you to know that this engine has during the past two seasons traveled over 24,000 miles on her regular trips; during this period her repair bill has been \$5.40 and this was due to carelessness. It is installed in a 30-foot boat with stationary top and drives it nine miles per hour. We might say that we operate a number of engines in our business, but during our twelve years' experience have never (with one exception) had as much satisfaction with gasoline engines.
"Yours truly,
Porcupine Ferry Company,
A. C. White, Mgr."

The Seelen Varnish Co.'s triangular Kyasize can, distinctive and practical.

New Anderson Agents.
The Anderson Engine Co., of Chicago, Ill., announce the appointment of the following new dealers:
F. A. Brander, Biloxi, Miss.; F. E. Tugwell of the Standard, P. O. Box 1, New Orleans, La.

Welcomes Prizes.
The Hyde Windlass Co., of Bath, Me., recently received a letter from H. H. Kramm, who is making a trip from Atlantic City, N. J., to Florida. A portion of the letter is quoted as follows:

"Just a few words about the 3 blade 14" x 24" Hyde propeller which I am using on the little speed demon Flying Eagle, on my trip from Atlantic City to Key West, Fla., particularly the past two weeks on my way down Currituck, Croatan and Pamlico Sounds, in the teeth of a northeast gale (and perhaps you know there is plenty of water in the above sounds, but as a fisherman said 'It is almighty thin,' and by the number of times I grounded on sand and oyster reefs I have come to the same conclusion).
"I think the little Hyde propeller has dug enough trenches through these sands to pretty nearly bury a whole army, and on examination



Two views of plants of the Ferro Machine & Foundry Co. The oval above shows the plant in 1905, while the present great factory appears below. A graphic record of progress and growth.

yesterday I found the wheel in perfect condition and not a sign of bending or a nick in any of the blades.
"You can rest assured that whenever I can say a good word for Hyde propellers I shall do so, and always when people start to ask questions about the Flying Eagle, they generally inquire first 'What engine are you using?' and my answer is 'A 12 H.P. Eagle,' and then 'What propeller do you use?' and my answer is 'Why, a Hyde.'"

Van Blerck Southern Business.

The Southern business of the Van Blerck Motor Company, of Monroe, Michigan, has taken a jump during this fall season, which has been more than a very agreeable surprise to even those most closely connected with the numerous transactions. One dealer alone, George Glingras, of Rockledge, Florida, of Greyhound fame, has placed within the last month and a half an average of an order a week for Van Blerck motors. This exemplary record of Mr. Glingras, who is ideally situated in the country that is just now coming into the prime of the motor boating season, might well be taken to heart by every marine motor dealer and boat builder in the country.

Elizabeth B.

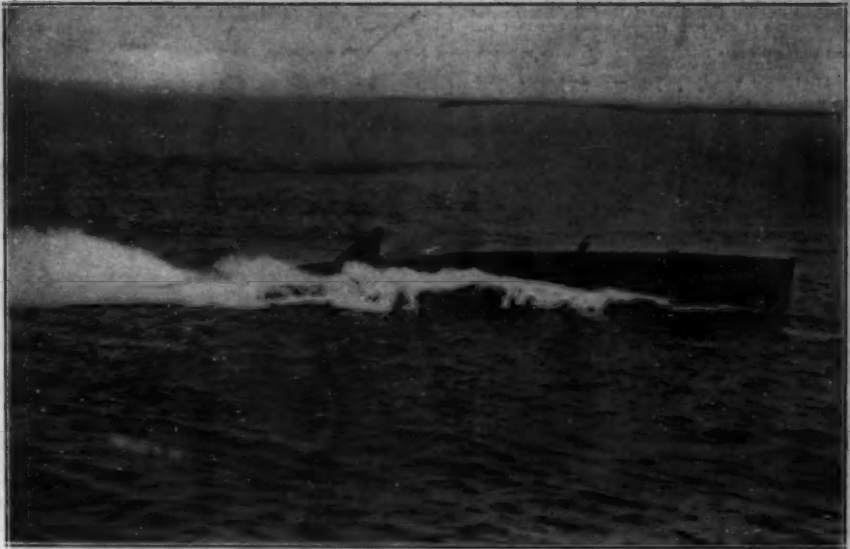
The Schacht Fish Company of Sandusky, Ohio, have in the last few years added a number of tugs to their fishing fleet on the Great Lakes.

In the Fall of 1912 Elizabeth B., a 44 x 11'6" beam, shallow draft, fan tail stern and sharp bow of very heavy construction, equipped with a 6 1/2 x 8-20 H.P. Heavy Duty Sterling, was turned over to one of their fishermen. This tug was in active service during the seasons 1913 and 1914 and was a success. Her power plant met its obligation hour after hour, day after day, in the most economical and efficient manner which was an important feature in making Elizabeth B. a paying commercial investment.

The Schacht Fishing Company say they will standardize their boats with Sterling equipment, and will add a number of fishing tugs to the industry next season. To



Staff of the Michigan Wheel Company of Grand Rapids, Michigan, taken outside the company's modern and completely equipped plant. During rush times the Michigan Wheel Company employs seventy-five men.



Dixie Sailer, 30-foot displacement runabout, designed by T. M. Fessner and powered with a 40 h.p. Wisconsin motor. This trim craft was much in evidence on the Shrewsbury RI. river last summer.

emphasize this statement, they placed an order with the Sterling Engine Company for a 6 1/2 x 9, four-cylinder 45 h.p. heavy duty motor to be installed in a 45x15 heavy fishing tug, which has been designed and is now being built by Christian Hansen of Sandusky, Ohio.

the well-known Scripps Complete Marine Power Plants, of the appointment of E. H. Allen as their special sales representative.

Sweet to the Rescue.

Louis P. Brown, Light House Keeper of the Cold Spring Harbor Light House, Oyster Bay, Long Island Sound, has been commended by the Department at Washington for saving four persons, two men and their wives, who were swamped in an open boat in a storm in late November.

In speaking of the accident Mr. Brown says, "It was in a strong northwest gale. Their boat was an open boat and a big sea had gone over them and put their engine out of commission. I launched my boat with difficulty and started my little Sweet Row-Boat Motor and ran before the wind and sea for about a half mile until I reached them."

This is a striking example of the efficiency of this powerful little engine. It is manufactured by the Sweet Mfg. Company of Detroit, Mich.

Watertown Sale.

The Watertown Motor Company, with offices and plant in East Moulton street, was recently sold to James P. Gillespie of New York, son of T. A. Gillespie, a contractor with a national reputation. The Gillespies are known in this city on account of the many seasons they have spent at the Thousand Islands. The local concern is to be moved to Paterson, N. J., where the present capitalization will be increased to \$100,000 and the output enlarged.

Miller Optimistic.

Chas. E. Miller, the big automobile supply jobber with fifteen branches in as many cities throughout the country, gave his employees his usual substantial cash Christmas present to each of them—thus continuing an annual custom started by



The boat factory of George Glingras at Rockledge, Fla. Mr. Glingras is handling the Van Blerck line in his district, and is turning in many orders.



Mr. Miller in the early bicycle days. By adhering to this practice Mr. Miller proven his confidence in the future of the motor and accessories business. In fact Mr. Miller stated to a representative of the press while business had been and still is somewhat unsettled, he really looked for great improvement during the year 1914. Mr. Miller is in an unusually good position to make this statement owing to the fact that he is close in touch with business conditions in many cities.

Bearings Company of America.

The Bearings Company of America, which has just been announced, is, according to J. S. Bruts, the logical successor to the J. S. Bruts Company, the Fichtel & Sachs Company and the Star Ball Retainer Company, both of Lancaster, Pa. All three of the old companies were dissolved during 1914, the idea being to concentrate the entire manufacturing, warehousing, the shipping and service departments at Lancaster, Pa., and the entire sales department at 250 West 54th Street, New York.

No change has been made in the personnel of the general



Hanford Flyer, a 40-foot day cruiser, powered with a 45-55 h.p. Sterling engine, which gives her a speed of 22 m.p.h.



Two attractive runabouts, powered with Regal engines, which were very much in evidence around Boston and Gloucester last summer.

management of the business, the idea being to continue it under the same efficient direction as heretofore, in the sale, production and importation of F. & S. Annular Ball Bearings, Ball Thrust Bearings, Star Ball Retainers, German Steel Balls and Bowden Wire Mechanism.

New Sterling Agent.

The Sterling Engine Company of Buffalo, New York, wish to announce the appointment of Christen Hansen as their dealer in the vicinity of Sandusky, Ohio.

While Mr. Hansen has only been with the Sterling Engine Company a very short time, he has succeeded in placing an order for one of their 25 H.P. heavy duty motors to be installed in a 40' x 12' heavy fish tug which he is constructing for the Schacht Fish Company of Sandusky, Ohio.

Regal Triplets.

Though far from being alike in name three 30-foot displacement runabouts owned in Gloucester are as alike as any triplets ever created in either wood or flesh. They were designed by Harry L. Friend of Boston and brought to reality by Percy W. Wheeler, the well known boat builder of Gloucester, Mass.

In each is installed a 32 H.P. light weight Regal engine. These are 4 cylinder engines $4\frac{1}{4}$ " bore by $5\frac{1}{4}$ " stroke. They are fitted out with the very latest improvements for comfort and pleasure. Bushmore starting and lighting dynamos are installed on the engines and the 12-volt system used affords ample current for all lighting as well as starting requirements. On the bulk head are located all switches, a glass for showing oil flow, and throttle and magneto controls. Everything is the most luxurious in the equipment of the engine and in the appointments of the boats.

delayed in making applications for space have been unable to secure any in spite of Secretary Ira Hand's paring process



A 16-foot Hacker design monoplan, built by the St. Louis Yacht and Boat Co., and powered with a 20 h.p. Loew-Victor engine.

by which some of the larger concerns were induced to cut down their floor space in order that the show might be made more representative and many smaller builders



One of ten boats built by the Michigan Steel Boat Co., and powered with 3 h.p. Detroit engines, in use in Germany. Silver Fox is being run on kerosene.

of boats, engines and accessories may have some space.

Loew-Victor Dealer.

The Gasoline Engine Equipment Company, No. 135 Liberty Street, New York City, announces that in addition to the Van Blerck and Standard Engines, they will now distribute Loew-Victor Engines for the metropolitan district. With the Loew-Victor line added, they will now have an absolutely complete line of 4-cycle machines, and will be in a position to meet all requirements.

Enchantress II.

Louis Burk, the well known Philadelphia yachtsman, owner of the A. F. B. and the Enchantress, is having a new high-speed cruiser built for him for use next season. This boat is designed by Bowen & Mower, and will be a 74' high-speed express cruiser known as Enchantress II. Mr. Burk has placed his contract with the Loew-Victor Engine Company for two of their 6-cylinder Loew-Victor Harbeck Engines. Unfortunately, Enchantress I. was not complete in time to be put in the leading Atlantic Coast races last season, but Mr. Burk promises to race her next year, and as she makes 28 real miles an hour, she will make most of them go some.

Cruising.

The joys of cruising are only now becoming known to owners

of motor boats, and only a comparatively few of these owners have really found out what possibilities they have in their boats. An owner of an automobile tours all over the country, but he has to run his car on good roads and to be discomforted with lots of dust. With the motor boat owner it is different. He has always some new come and some new problem to confront him, and there is never a dull moment in all his journeyings.

At the coming Motor Boat Show, which will open in the Madison Square Garden on Saturday, January 30, one will be able to learn of hundreds of trips that can be made with a motor boat because the Coast and Geodetic Survey will have an exhibit there and will be supplied with charts that have been specially prepared for the use of motor boat owners. An expert will tell how these charts should be read understandingly and be, with others, will also tell of the delights of many of these inland voyages.

The show this year will be one of special interest to those who love cruising, and there will be eight or ten cruising boats on exhibition varying in length from 25 feet to 32 feet.

The Limit.

"Now if that is not the limit!" exclaimed the crestfallen owner, as he surveyed the ashes of his boat in the ruins of the Kretzer Boat Works last year. "The limit it is," agreed the much disturbed builder, "but we'll build another and, if possible, better boat for next season"—so the embryo boat was named the "Limit" while the embers were still smoking.

Twenty-five feet over all, cedar planked, brass screwed, mahogany trim, Spanish leather upholstery and built to special

(Continued on page 62)

Montreal Show.

Owing to the present circumstances it has been found impossible to promote an exclusive Motor Boat Show for Montreal during this season, and the M. A. T. A. were asked to devote a section of their show to motor boats. This special motor boat section was decided upon.

The show was held in the Allen Line Liverpool Buildings situated at the foot of McGill Street from Jan. 23rd to 29th inclusive. Motor boat exhibitors thus got the benefit of a complete and thoroughly organized exhibition in every detail.

The Show.

Nearly one hundred different manufacturers of motor boats and other water craft, accessories and parts, have space in the Motor Boat Show which opened in the Madison Square Garden on Saturday, Jan. 30.

This show will last until the following Saturday, closing on February 6. All the exhibits and the scenery used for decorative purposes at the Garden show will be taken practically intact and shipped to Chicago, where the show will open in the Coliseum on Saturday, February 27, and will attract attention there for seven days. This experiment was tried last year by the National Association of Engine and Boat Manufacturers and proved very successful. It was found that many eastern men took part in the New York Show and those whose business was more exclusively in the west showed in Chicago, while many of the larger concerns showed in both places and did well. This year the Chicago Show will be much larger than that of last year while in New York many who



Attractive new booklet that L. W. Ferniss & Co. is offering motorboaters.



The Limit, built by the Kretzer Boat Works for P. Jackson Higgs of New York.

MOTOR BOATING ADVERTISING INDEX

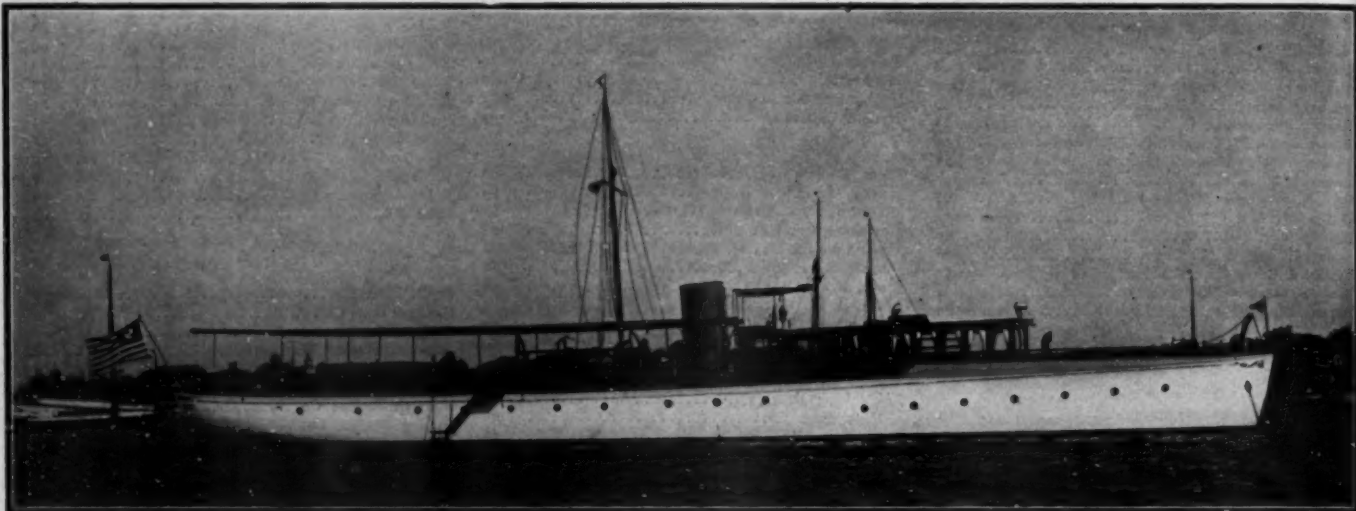
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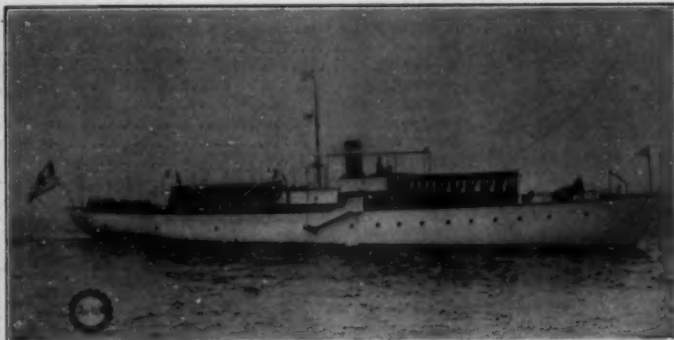
COX & STEVENS

15 William St., New York
Telephone—1375 Broad.
Cable—BROKERAGE.

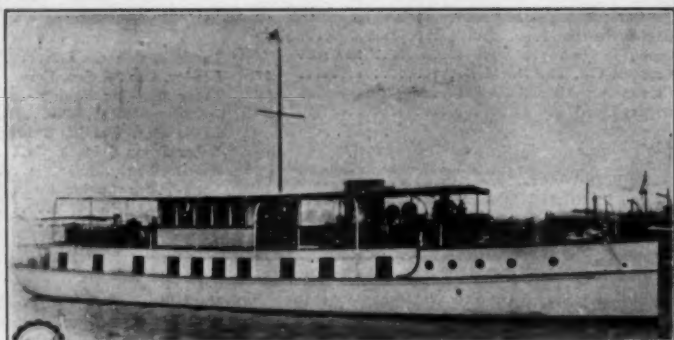
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request. Catalogue illustrating types and sizes of yachts we have for sale will be mailed on application.



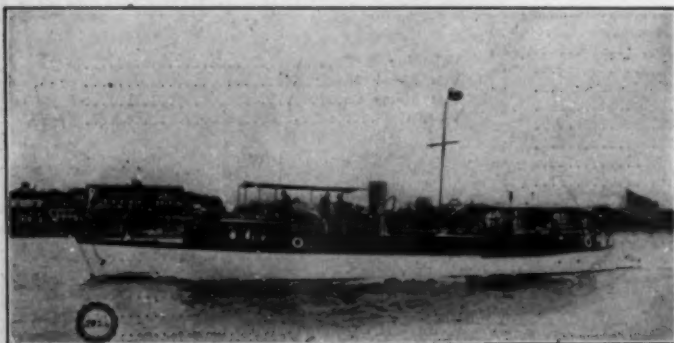
No. 883.—For Sale or Charter.—Exceptionally handsome, fast, steel, twin-screw cruising power yacht; 118 x 16.6 x 5 ft. Built from our design. Speed up to 18 miles; three double staterooms, main and dining saloons, two bathrooms, electric lights, etc.; handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht. Apply to Cox & Stevens, 15 William St., New York.



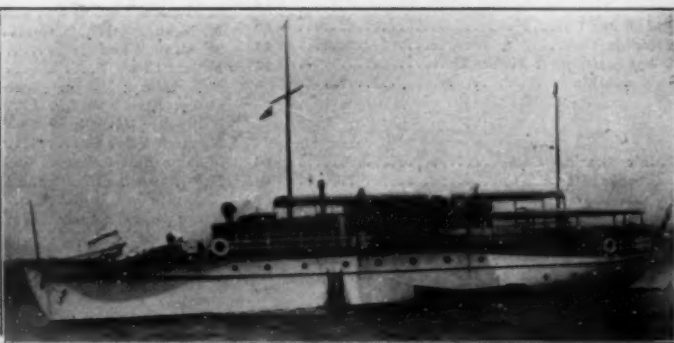
No. 2026.—For Sale.—Very desirable twin screw power yacht, 107 x 18.3 x 5.3 ft. Built 1912. Speed 11-12 knots. Economical to operate. Four staterooms, large dining saloon, bath, two toilets, etc. Large deck space. Luxuriously furnished. Cox & Stevens, 15 William Street, New York.



No. 2100.—For Charter.—In Florida waters, 95 ft. modern gasoline houseboat. Splendid accommodations; exceptional speed. Also several others 60 to 120 feet in length. Cox & Stevens, 15 William St., New York.



No. 2825.—For Sale.—Cruising power yacht, 85 x 14 x 5 ft. Speed 11-13 miles. Large dining saloon, three staterooms, bath, independent lighting plant, etc. Beautifully finished and furnished. Excellent seaboat. Unusual bargain. Cox & Stevens, 15 William St., New York.



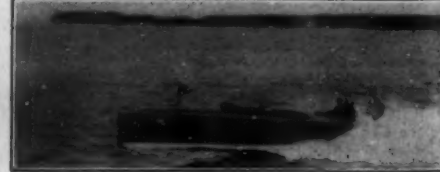
No. 1326.—For Sale.—Very able, twin screw power yacht, 75 x 14 x 6 ft. Recent build. Very heavily constructed; splendid seaboat. Speed 11 1/2 miles. Two staterooms, large saloon, bath, electric lights, etc. Large deck space. Price attractive for immediate disposal. Cox & Stevens, 15 William St., New York.



No. 429.—Excellent Bargain.—Handsome power yacht; 68 x 12.3 x 4 ft. Best construction and finish. Speed 12-13 miles; 50/60 h.p. Standard motor. Double stateroom, large saloon, two toilets, etc. Large deck space. Cox & Stevens, 15 William St., New York.



No. 1305.—For Sale.—Bridge deck cruiser; 50 x 10.9 x 3.6 feet. Speed 11-12 miles, 25/35 h.p. Standard motor. Double stateroom, saloon, etc. Handsomely finished in African mahogany. Price very low. Cox & Stevens, 15 William Street, New York.



No. 2804.—Bargain.—32-ft. hydro-plane, speed up to 32 miles; Lawley hull; two 6 cyl. Sterling motors. Built 1912. Excellent condition. Unusual opportunity. Cox & Stevens, 15 William St., N. Y.

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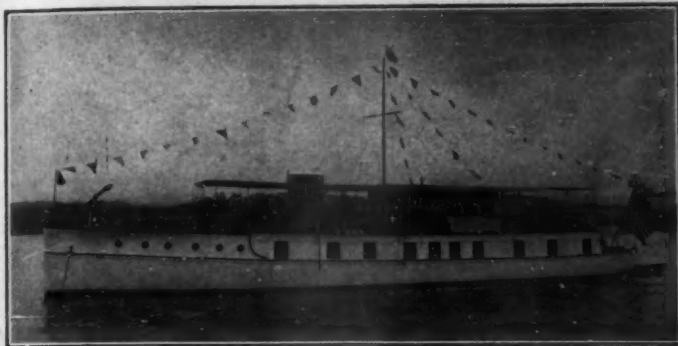
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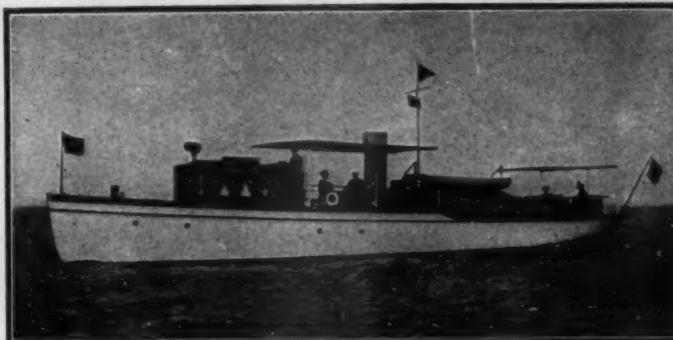
All the best available Yachts--every size and type-- for Sale and Charter. A number of very desirable Gasolene Launches and Power House Boats now in commission in Florida waters for Charter--long or short periods at attractive prices. Send for Hand-some Illustrated Yacht List showing 200 photographs; free to buyers.



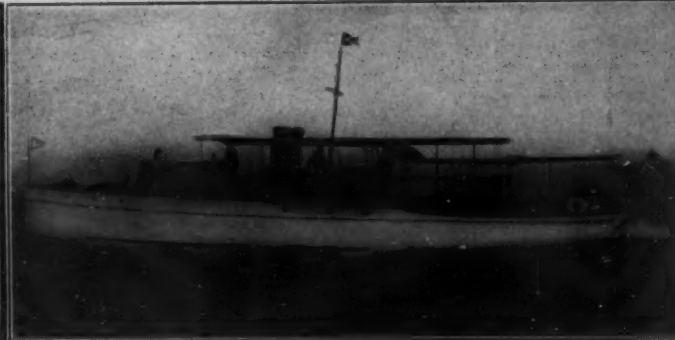
7744.—Ideal Twin Screw Cruiser. For charter. 95 x 19 x 3.5. 4 double staterooms. All modern conveniences. Speed 12 miles. In commission. Stanley M. Seaman, 220 Broadway, New York.



6735.—85-ft. Shoal Draught Cruiser. 3 staterooms. Large saloon. Bath. Speed 12 1/2 miles. In commission Miami, Florida. Available for charter. Stanley M. Seaman, 220 Broadway, New York.



7800.—Twin Screw 80-foot Elco Cruiser. 3 1/2 ft draught. 3 staterooms. Bath. Speed 13 miles. Perfect condition. Stanley M. Seaman, 220 Broadway, New York.



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7679.—63 ft. Coast Cruiser. Launched 1913. Practically new. Elegant condition. Low price. Stanley M. Seaman, 220 Broadway, New York.



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7747.—45-foot Cruiser. Launched 1913. Speed 11 miles. Bargain. Stanley M. Seaman, 220 Broadway, New York.

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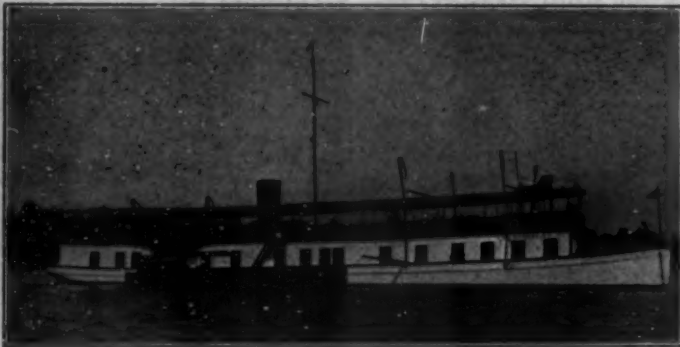
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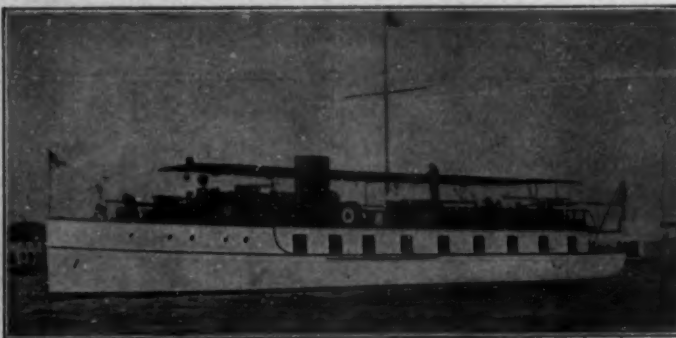
"Offer for charter or sale the following yachts; all are ideally suited for use in Florida. We have specialized in Southern and Florida charters, having most complete lists of suitable boats available."



No. 1808.—For Charter.—Desirable twin-screw houseboat, 123 ft. x 17 ft. 8 in. x 3 ft. 4 in. draft; 4 staterooms, 2 bathrooms, large saloon, electric light plant, ice machine, etc.



No. 1847.—For Charter, in Florida waters—83 ft. houseboat; Standard motor; 3 staterooms, bathroom, saloon. Speed 12 miles.



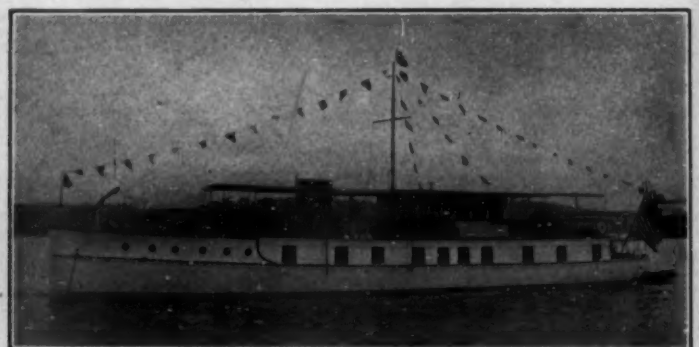
No. 1865.—Sale.—Modern twin-screw houseboat, 90 ft. x 17 ft. 6 in. x 3 ft. 3 in.; 4 staterooms, dining saloon, large deck house, 2 bathrooms.



No. 1805.—Sale.—Now in Florida waters; 125 ft. x 23 ft. 4 in. x 3 ft. 6 in. draft; 8 large staterooms, 3 bathrooms, dining saloon, observatory and main saloon. In excellent condition.



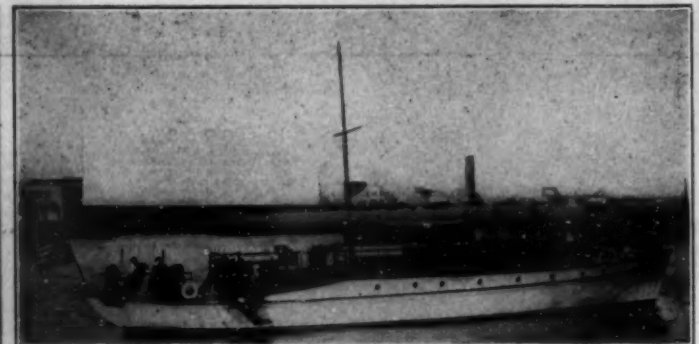
No. 1837.—Sale.—Charter.—Up-to-date twin-screw houseboat, 87 ft. x 23 ft. x 4 ft. draft; 3 staterooms, dining saloon, deck saloon, 3 baths.



No. 1871.—For Charter.—Desirable houseboat, 93 ft. x 19 ft. x 3 ft. 3 in. draft. Electric lighted. Twin screw. Speed 12 miles. 4 double staterooms. In commission.



No. 8196.—Sale.—Charter.—85 ft. modern cruiser. Excellent accommodations. Standard motor; speed 12 miles. Lighted by electricity. In commission Miami, Florida.



No. 7674.—Sale.—Charter.—Now in Florida waters. Twin screw gasoline cruiser 75 ft. x 17 ft. 6 in. beam. 1 double and 1 single staterooms, bathroom, large saloon, abundance of deck space.

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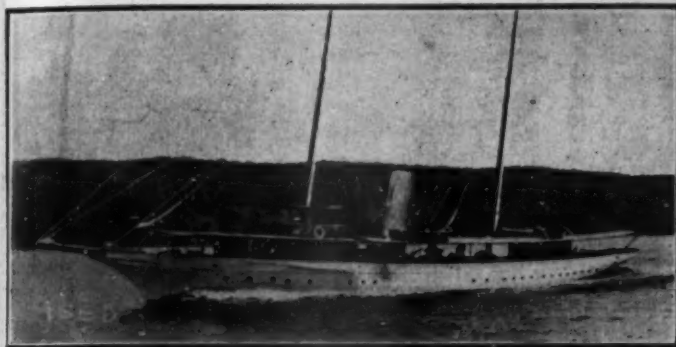
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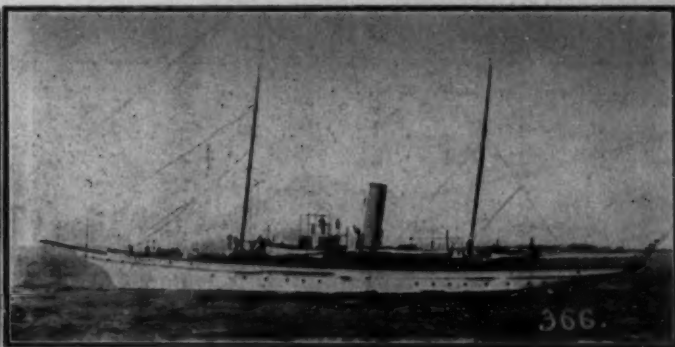
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Telephone: 4673 Broad
Cable Address:
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A. B. C. Code

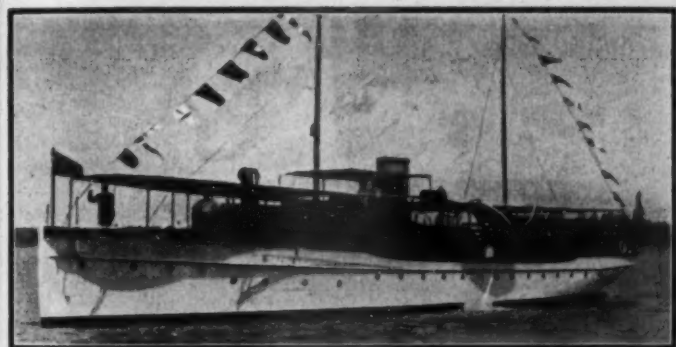
The following attractive boats are offered for sale and charter. Large number of others to select from are listed with us for sale. Yachting in Florida next Winter promises to be very active. To secure the choice yachts early decision is advisable.



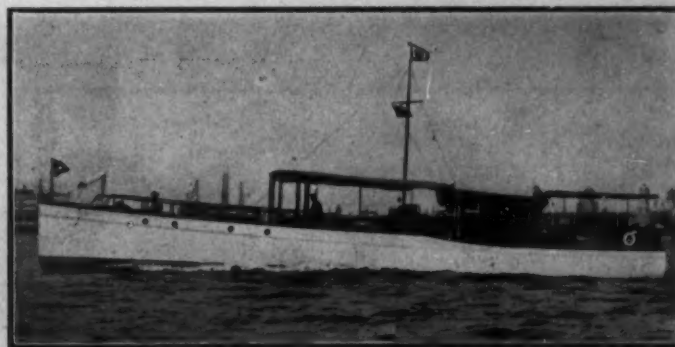
No. 1665.—For Sale; possibly for Charter.—Steel steam yacht, 170 x 21 x 8 ft. draft. Speed up to 18 miles. 6 double staterooms. Main Cabin. 2 deckhouses. Large bridge. Well found. Reasonable.



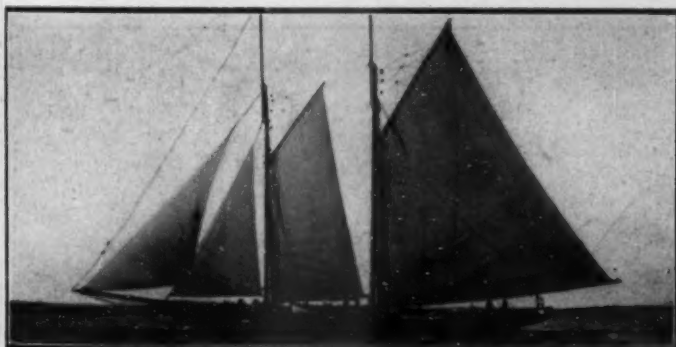
No. 366.—For Sale or Charter.—Seagoing steam yacht owned by an estate, 200 x 26 x 12 ft. draft. Speed up to 14 knots. 10 staterooms. 4 bathrooms. Every convenience for offshore or coastwise cruising. Reasonable.



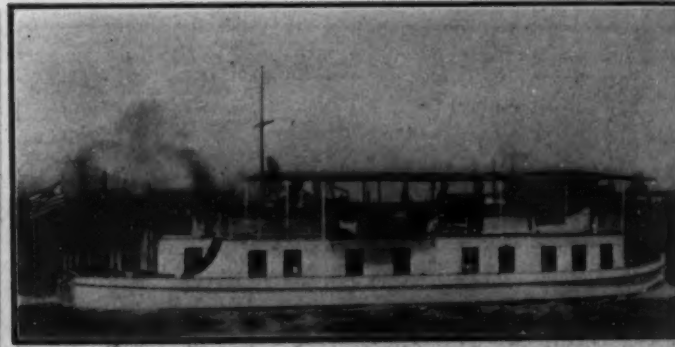
No. 4717.—For Sale.—Twin screw motor yacht, 98 x 17.2 x 5.6 draft. Built 1913. Speed up to 16 miles. Unusually well found. Construction, finish and equipment A-1. 3 staterooms. 2 bath rooms. Deck dining saloon. Independent electric light plant. Hot and cold water. Hull metal sheathed.



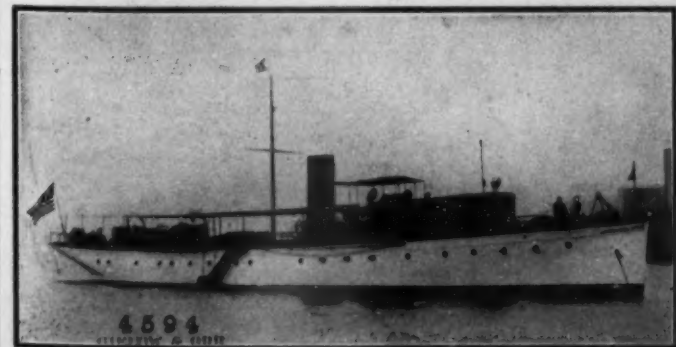
No. 4738.—For Sale.—Fast twin screw cruiser, 91 x 12 x 3.9 draft. Built by Lawley 1913. Speed 18 miles. Two 6-cylinder motors. 3 cabins. Sleep 4 in owner's party.



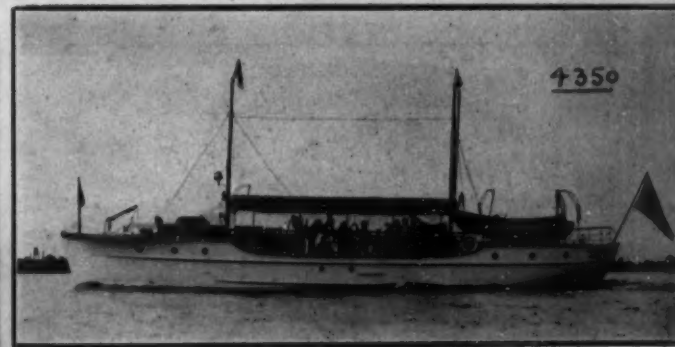
No. 1371.—For Sale.—Auxiliary keel schooner. Fisherman type. Very fast. 125 x 104 x 25.3 x 12.6 draft. Extra heavily constructed. 3 double and 4 single staterooms. Large saloon. Flush deck with cockpit 8 ft. x 9 ft. 6-cylinder "Standard" motor air starting and reversing type, 100 H.P. New sails 1913. Excellent condition. Low price.



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No. 4594.—For Sale.—Twin screw, steel, cruising motor yacht, 120 x 17.2 x 5 ft. draft. Built 1913. 3 double and 3 single staterooms. Cabin, deck dining saloon. Two 6-cylinder air starting and reversing engines, 135 H.P. each. Speed up to 16 miles. Hot water heating plant. Unusually well found.



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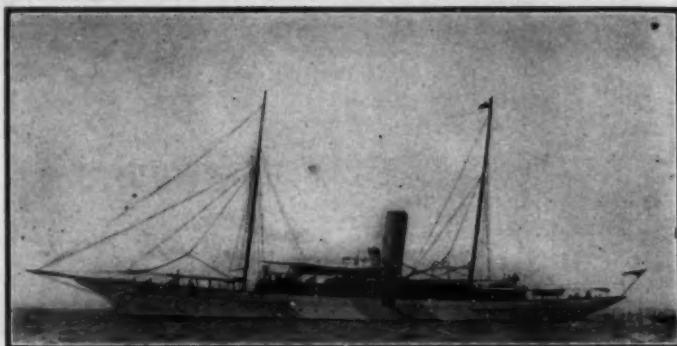
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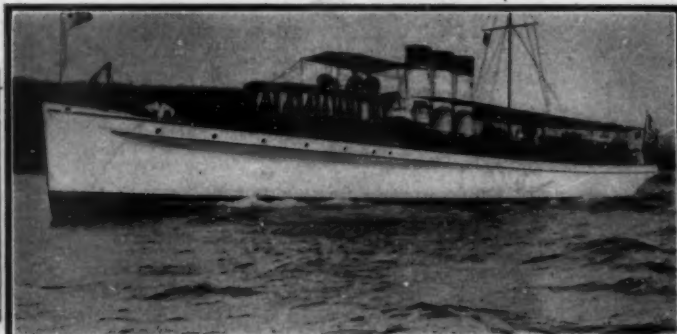
No. 3841.—280-ft. Barque-Rigged Steam Yacht; one of the finest and best of the large sea-going yachts. Frank Bowne Jones, Agent, 29 Broadway, New York.



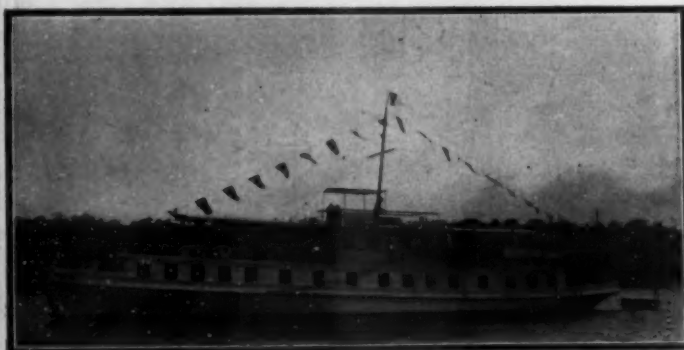
No. 3852.—300-ft. Ocean-Going Steam Yacht; American owned; one of the finest vessels afloat. Frank Bowne Jones, Agent, 29 Broadway, New York.



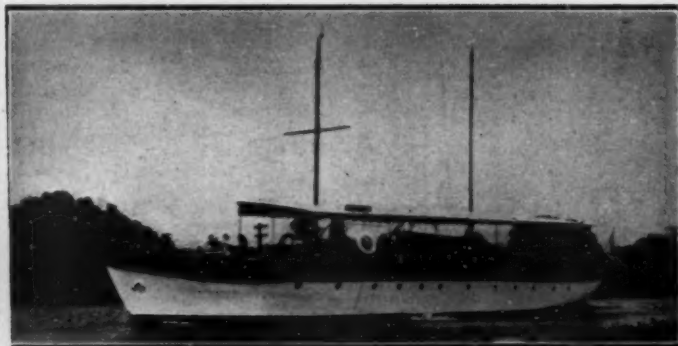
No. 6858.—120-ft. Steel Twin Screw Gasoline Yacht; built last year; highest class. Frank Bowne Jones, Agent, 29 Broadway, New York.



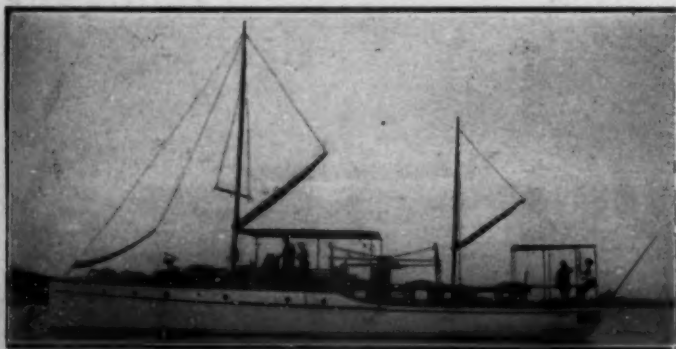
No. 6817.—140-ft. Twin Screw Express Steam Yacht; one of the fastest and newest vessels of the type. Frank Bowne Jones, Agent, 29 Broadway, New York.



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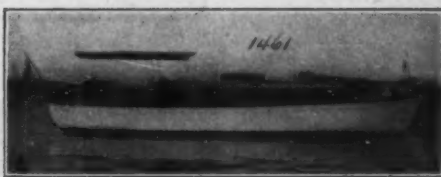
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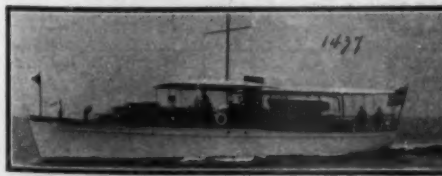
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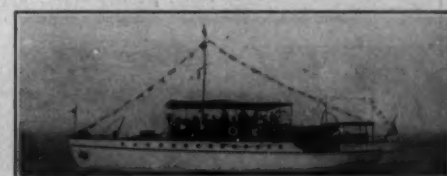
No. 1121.—50-foot cruiser. Two saloons, stateroom, bathroom, etc.



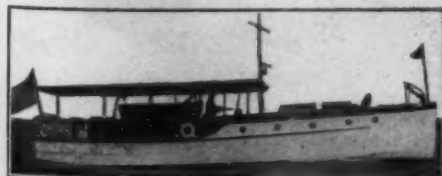
No. 1437.—Sale or Charter.—72-foot cruiser. Two double staterooms, large saloon, bathroom. Standard motor. Speed 12 miles.



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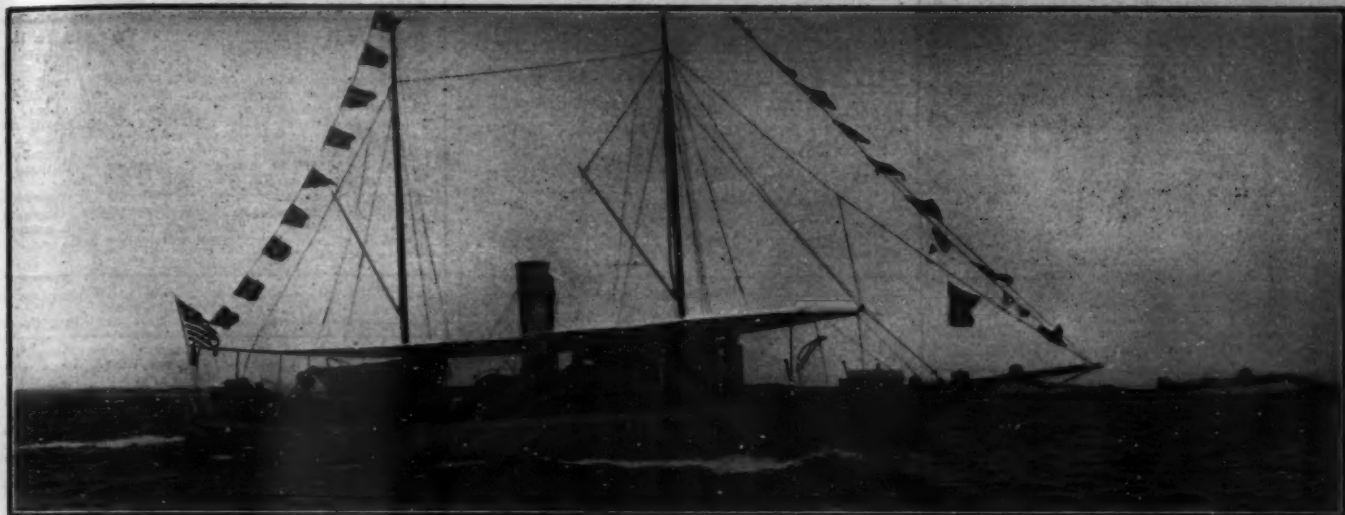
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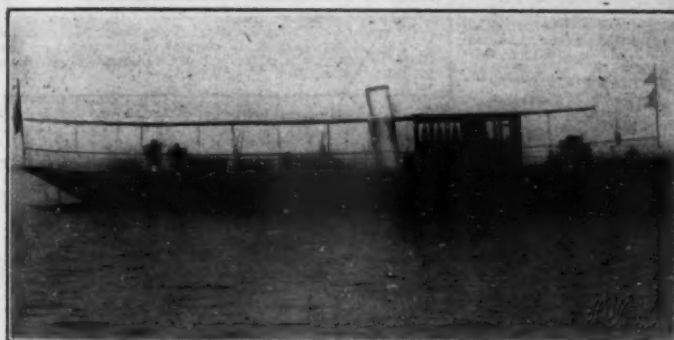
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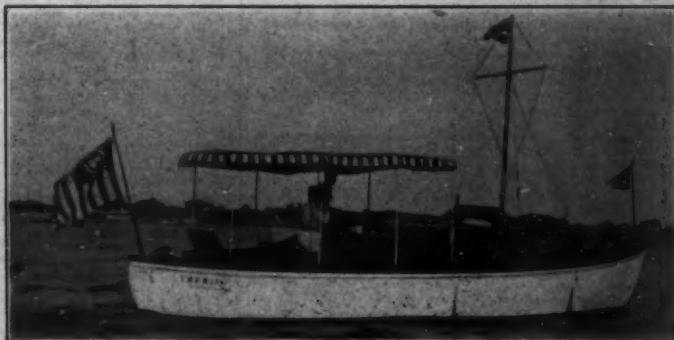
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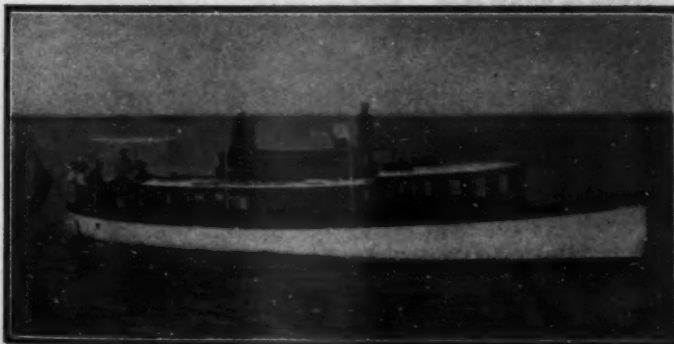
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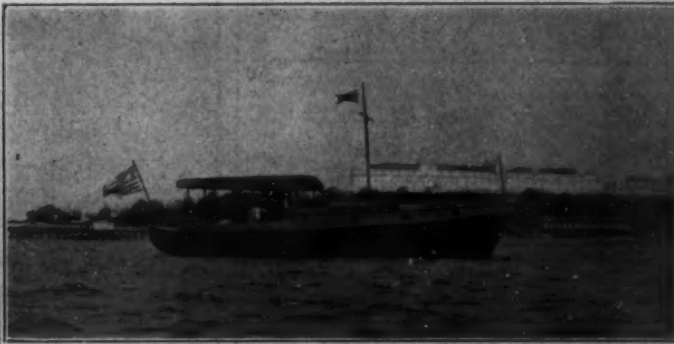
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The First Races of 1915.

(Continued from page 13.)

Enquirer and Ruth C. owned by Commodore W. J. Conner, of Buffalo, N. Y.; Vibora, belonging to James Deering, of New York and Miami, and Bebe Shadow and Miami, owned by Carl G. Fisher. Only three of these seven, Miami, Baby Speed Demon and Baby Reliance, started, however. The crew of Baby Speed Demon was Robert Edgren, of the New York World, driver, and John Beebe, mechanic; for Baby Reliance, J. Stuart Blackton, driver, and Jay Smith, mechanic. The other boats were unable to run because of engine and pump trouble.

At the firing of the starter's gun, Baby Reliance got off first and was followed by Baby Speed Demon, Miami getting off third. Keeping its advantage, apparently easily, Baby Reliance maintained its lead, gained in the start and stayed ahead of its rivals for the first three laps. In the second lap it led by 2 seconds, and in the third lap by 5 seconds. At this time, Blackton, driving Reliance, began to slow down at the rather sharp turns and lost several seconds in this way, Baby Speed Demon gaining at the turns.

At the close of the fourth lap Baby Speed Demon, under Edgren's guidance, had a lead of 6 seconds. Holding his lead gained in the fourth lap, Edgren led in the fifth by 4 seconds; in the next he raised his lead one second, but in the seventh lap it fell again to 2 seconds.

By an exceptional burst of speed in the eighth lap Blackton in Baby Reliance came forward and gained a lead of 2 seconds. This was lost almost immediately, however, Demon coming to the front in the ninth lap, leading by 2 seconds. During the tenth lap both hydroplanes put forth extra efforts, but the attempt of Reliance was of no avail, Demon winning the event and \$300 cup by 2 seconds. Her time for the thirty miles was 39 minutes, 51 seconds.

Miami, Carl Fisher's boat, although in pretty well at the start, began to lose ground very shortly after the firing of the starter's gun, and stayed hopelessly in the rear, being one and one-half laps behind her competitors at the finish.

Baby Speed Demon has a length of 30 feet, a 6-foot beam, and her power plant is a Sterling 8-cylinder engine of 200 h.p. She is rated at about 50 miles per hour. Baby Reliance is of the same dimensions and has the same power plant. Miami has a length of 30 feet and carries two 200-h.p. 8-cylinder Sterling motors, the cylinders of which are 5½ x 6¼ inches. She was driven by John Levi.

The following day, Saturday, was not quite so favorable for racing, as there was a very brisk wind and a very choppy sea. The races for Saturday started at 10 a. m., and at the opening hour not so many people occupied the grandstand or the Alton Beach shore line as at the opening the previous afternoon. The line of yachts anchored just west of the course, however, was practically the same before the sun reached the zenith.

The first event, the race for open displacement boats of 25 feet and under, was for nine miles, but was shortened to six miles. Three boats, Newton, owned by J. N. Lummus, of Miami; Dorothy and Dorothy D, were booked for entry. At the appointed hour Newton, a Speedway-powered boat, was the only one to show up. However, at the last minute Rosalie, owned by Howard Backus, of Miami, entered, and the race was started.

From the firing of the starter's gun until Newton crossed the line 10 minutes and 30 seconds in advance of her rival, the race was a farce, as the little Rosalie was left hopelessly in the lurch a few minutes after passing the starting buoy. She drew second, however. The time of the 18-foot Newton was 19:50, and that of Rosalie 30:10.

The second event, for cabin cruisers of 40 feet and under, was 7½ miles, over a specially surveyed shorter course of 2½ miles. Three entries were booked. They were Clio II, owned by C. E. Wellman, of Chicago; Zalene, owned by Carl G. Fisher, and Evelyn, belonging to Charles G. McCutcheon, of Jackson, Mich.

At the last minute Clio II withdrew her entry and her place was immediately filled by a "dark horse" named Marion, owned by James Deering. This gave the race three entries exactly the same in every respect, as each boat was built at the same yards, after the same model. The length was 30 feet, the beam 7 feet 6 inches, and the draft, 2 feet 9 inches. They were each propelled by a Speedway four-cylinder 30-35 h. p. engine, with 4½-inch bore by 5½-inch stroke. They are rated at about 14 miles per hour.

The boats started out with a sweep, in the following order: Evelyn, first; Marion, second, and Zalene, third. Marion passed Evelyn, taking first place, while the latter was set back to last place by a spurt of Zalene, which took second. At the end of the second lap the positions were the same, but Marion had increased her lead by 19 seconds. At the end of the third and last lap, she held a lead of exactly two minutes, winning the event easily. Her time was 35:20. Evelyn's time was 37:02, and Zalene made the distance in 37 minutes and 5 seconds. The next event, the race for open displacement boats of any length, started at 1:30 P. M., with four entries, Marion, Newton, Dorothy, and Rosalie. Dorothy D had been booked to enter, but did not appear, and Rosalie as in the morning event of the same nature was a last minute entry.

This event was also for a distance of 7½ miles, three times around the 2½ mile course. About a hundred yards past the first turn Dorothy's engine broke down, forcing her to retire from the race. The start was fairly even, but at the end of the first lap greater time prevailed between the entries. Marie led by 1 minute and 9 seconds, while the little Rosalie was 6 minutes behind Newton. At the end of the second lap Marie was ahead by 4 minutes, 20 seconds, and Newton led Rosalie by 11 minutes, 55 seconds.

In the next lap, the third and last, Marie moved more swiftly than ever through the water, making a magnificent spurt, which brought her in winner of the Miami Championship Cup for the class by 7 minutes and 48 seconds. Rosalie came in 30 minutes and 47 seconds after Newton. Although his boat, which was hopelessly slow, lagged so far behind the others, the owner, Howard Backus, who was driving, stuck to the grind, and, owing to the dropping out of Dorothy, pulled down the third prize. He proved himself a good sport throughout the long race and stuck doggedly to the work of completing the full distance.

(Continued on page 58)

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Along the Gulf Coast.

(Continued from page 9.)

The next day was Sunday, and I celebrated by starting off at about eight, figuring to do the 50-mile outside run to Big Sarasota Pass and the shorter leg of about 20 miles up Sarasota Bay to its junction with Tampa Bay before dark. The engine, which for the most part was a reliable, steady-going old girl, did a little celebrating of her own, by going out of whack just as I had rounded the southern end of Gasparilla Island and was threading the narrow swash channel into the open gulf. With the anchor overboard as a safe precaution, it didn't take two minutes to find that the trouble was caused by the loss of the carbon tip from one of the striker arms. This I put in place, after it had been recovered from its resting place in the bilge, and with the hope that it would stay in, turned her over, hoisted the anchor and was away. The journey up the coast was uneventful, although it was fully borne in on me that with even so small a boat as mine there is plenty for one man to do. What with turning down the grease cups once in every so often, squirting a little kerosene on the movable electrodes for luck now and then, picking up landmarks on shore and setting them down on the log, getting the auxiliary jib to fill, and laying out a course of campaign for negotiating, if necessary, each inlet passed, I spent a pretty busy day.

Midway of the run the engine stopped again, and for the same cause, and this time the repairs amounted to a replacement of the whole igniter plug with a spare, the job taking some thirty minutes, and the boat being drifted offshore slightly by the gentle easterly breeze. Two-thirds saw me rounding the point and making in for Sarasota Pass. Any one with two eyes and a hand to turn the wheel can make this pass, the directions being merely to hug the beach and the south side of the inlet, but there are shoals inside to catch the unwary. Luck, personified in a fleet bridge-deck cruiser which was going my way, guided me through this passage, and although the local craft had a mile or so on my speed I was well up the bay into good water before she was far enough ahead to be of no use as a pilot. The upper stretches of this bay are shallow, but the channel, though devious, is well marked, and the one time I ran out of it and snubbed up on bottom I was going so slowly as to make pushing off an easy matter. Nightfall saw me anchored at the edge of the channel off the aromatic fishing village of Cortez.

If you want real sailing in Florida run over to Tampa Bay, where there are more fathoms under you than there are feet on the East Coast, and where the wind has a chance to do more with the water's surface than kick up a nasty little purposeless chop. The next day's run, though the shortest of the three, was the most enjoyable, as the wind had swung around to the southwest and was sweeping right up the channel to the point where the course swings off to port and Tampa Bay becomes Hillsboro Bay. There are times when a following sea is the least desirable for a small flat-sterned cruiser, but given one which stops just short of racing the propeller, there is nothing to beat the exhilaration of the forward, downward plunge with a slight rolling motion thrown in to boot which the broad back of a big fellow gives you, followed by the sudden check and heaving up of the bow as the boat overtakes another one.

The pointed grilles placed on the can buoys in this vicinity in an effort to preserve their jaky hue give evidence of the abundance of the birds, and the ducks I saw were so tame as to wait until the boat was almost on them before diving out of the way. One I could have struck with the oar as it submerged past the boat. An occasional excursion steamer bound for St. Pete or Bradenton passed me, the excursionists watching me bob in their wake, no doubt glad they weren't in my shoes, while I wouldn't have changed places with them if ownership of the steamers themselves had been offered as an inducement.

Rounding into Hillsboro Bay I salvaged an oar which was outboard bound on a cruise of its own, and lost the dish pan by way of compensation, as the waves, which had been running with me, took to piling up on the stern quarter. Once past Gadsden's Point the bay flattened out, although a steadily rising breeze showed that if I had been later in starting that morning I would have come in for more than was good for me in the open stretches of the bay. The three bridges across the Hillsboro River gave the usual amount of trouble, the engine stalling each time, after fifteen minutes of idling shared by motor and bridge tender, but three o'clock saw me with my journey ended, anchored off Burger's yard, and piling everything swivable but the engine into the cabin, preparatory to a week of good clothes and shore leave.

The 1915 Motor Boat Shows.

(Continued from page 7.)

boats, but the pleasure which he will get from his outfit will be many times in excess of that which would have resulted had he been content to sacrifice a few dollars in first cost by purchasing a boat from one of the many house carpenters whose real ability in boat building is very expensive to experiment with.

The exhibit of motors this year is the most complete and comprehensive one ever shown, as is also the accessories. The officers of the National Association of Engine and Boat Manufacturers are to be congratulated on their results, both from the standpoint of the boat-loving public and the manufacturers as well. Pages 16 to 32 in this issue are given up to a detail description of the various exhibits, and every reader should go carefully through these in order to keep in touch with the most up-to-date practice in motor boating.

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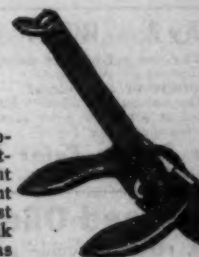
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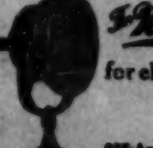
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Horse Power vs. Weight.

(Continued from page 11)

other words, the weight per horsepower. Within reasonable limits a well designed hydroplane weighing 32 pounds per brake horsepower, with crew aboard, should develop a speed of about 35 miles per hour, irrespective of whether a 25 horsepower motor is used to drive an outfit weighing 800 pounds, or a 100 horsepower is used in a 3200 pound outfit. The pounds per horsepower is the same in both cases, and if the hulls are of equally good design, the speed results should be the same, within very close limits.

For the faster displacement boats, the same principle holds good also, that is, for displacement boats developing a speed of over 25 miles an hour. No one would expect, however, that a displacement boat weighing 40 pounds per horsepower would develop the same speed as a hydroplane weighing 40 pounds per horsepower and this is just the case. The former type should go about 25 miles per hour while the latter should develop nearly a 35-mile speed, yet both follow the same general curve with simply a different constant.

On pages 10 and 11, two curves are shown, plotted from the actual weights and brake horsepower of a large number of the country's best boats. The data from which these curves were derived was absolutely reliable, being taken from scale weights, brake horsepower and speeds made in mile trials. Illustrations of a few of the boats, whose data was used, are shown on these pages, and the point where they fall on the curve is indicated by corresponding numbers. By applying the factor of weight divided by horsepower for any well designed displacement boat or hydroplane, the speed which may be expected to result from the combination can be easily determined by referring to the curves.

In using the curves, one thing is important and that is, that the data be accurate. Weights must be real weights, not guesses, and should include the weight of everything aboard, including crew. Horsepower values also should be accurate, not approximations or the manufacturer's idea of what the motor should develop at some time or other.

From the above we will see that ultimate speed is largely a matter of weight. If the weights are kept down low enough, high speeds are possible with even low powers, but if the boat and her power plant are heavy, then to get good speed requires a large amount of power.

Another value of the curves will be to show what effect a change in weight will have on a boat's speed. For example, suppose we have a hydroplane weighing 1200 pounds with a 30 horsepower motor, our weight per horsepower is therefore 40 pounds, and from the curves we see we may expect a speed of about 36 miles per hour. We decide to make a change in power plant or equipment which will reduce the weight by 150 pounds, then our total weight will be 1050 pounds or 35 pounds per horsepower. Again referring to the curves we see this weight should give us a speed of 39 miles an hour or an increase of 3 miles by this reduction in weight.

In a similar way, a large number of possibilities can be worked out which will give the owner a good idea as to how to get the best results out of his particular outfit.

Yard and Shop.

(Continued from page 46.)

design, her owner believes she is literally the limit of comfort, safety and trimness of line of semi-speed family runabouts for use in the little New York waters.

From point of design she is unusual and is built upon the principle of raising the station point to obtain beam without loss of speed, at the same time avoiding the "tubiness" common with most "safe" boats.

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The "Limit" was designed and built for P. Jackson Higgs of New York by the Kreiser Boat Works.


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If you are one of many who have visited the Shrewsbury River region during the summer, you have probably seen the handsome displacement runabout which is pictured in this section. Dixie Sailer, designed by T. M. Foxner, of 50 Church Street, is an excellent example of the beauty, safety and simplicity of the up-to-the-minute runabout.

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A pleasing and practical feature of the boat is the divided sternman's seat, which makes it possible to step from the helmsman's cockpit to the after part of the boat without having to climb over a seat back.


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What are your requirements?

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Electric Lights on Your Boat

We have just gotten out an entirely new type of marine lighting plant that will just suit you, no matter how large or how small your craft is—whether a yacht or motor boat. Our plants don't consist merely of a set of automobile storage batteries, but they are real marine batteries.

Equip your boat for next spring. Write today for our catalog and prices.

Agents wanted in open territory—Not just solicitors but "live wires." Are you one?

The Dayton Electrical Mfg Co. 186 Emily Street, Dayton, Ohio
R. V. Sutcliffe Co., 136 Liberty St., New York City;
Electric Agencies Co., 247 Miami St., San Francisco, Cal., and Central Building, Los Angeles, Cal.; Basine Chandler-Dunlap Co., 73 Columbia St., Seattle, Wash.; Mitchell, Lewis & Staver Co., 340-345 E. Harrison St., Portland, Ore.; Geo. B. Carpenter Co., 440 Wells St., Chicago, Ill.; W. H. Morison Co., 218 State St., Boston, Mass.

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(Patented)

Scientifically designed to secure maximum thrust efficiency from every square inch of surface—and does it. Manganese bronze. Guaranteed.

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SHAW PROPELLER CO., Board of Trade Building Boston, Mass.

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5 to 80 H. P.

Built to run on Gasoline and Kerosene. Two Carburetors, two separate Intake Manifolds, crank balance shafts, high compression, powerful and skillfully designed and constructed.

Leary Gasoline Engine Company
1885 Dewey Ave., Rochester, N. Y.

THE FIRST COST THE ONLY ONE. The Control is perfect. New catalog in English or Spanish gladly mailed upon request.

Most Dependable Air Starter
including tank, Kellogg Pump and complete connections.

Write for booklet and prices.

Kellogg Manufacturing Co., Rochester, N. Y.

Bulb Shank Mooring Anchor

Your boat can't get away. The bulb shank makes it lie flat, but raises enough to ease off sudden strains. Head won't ball up with mud. Eye for trip line makes easy to raise at end of season. Write today for our free "Mooring Book."

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FOR HIGH SPEED WORK

CURTIS FLYING BOATS, used everywhere; speed 60 to 80 miles per hour. Safest, most comfortable, fastest.

CURTIS HYDROPLANE, 50-60 m. p. h., modern construction.

CURTIS MOTORS, 40 h. p. to 200 h. p., five models; used and accepted as best by six leading governments.

ILLUSTRATED LITERATURE FREE ON REQUEST.

THE CURTISS AEROPLANE CO.
28 Lake Street, Hammondsport, N. Y.

THE FAMOUS MICHIGAN PROPELLER WHEELS, REVERSE GEARS AND HIGH GRADE MOTOR BOAT SUPPLIES

Thousands of the Michigan Reverse Gears in constant use. No better made.



New Retail Prices

No. 1....\$16.80	No. 4....\$40.80
No. 2.... 24.00	No. 5.... 55.20
No. 3.... 31.20	No. 6.... 72.00

Our No. 1 Gears are used on Kermath and many other engines up to 15 H. P.



Thirty thousand of Reversible Propellers sold in the last five years. The only Reversible wheel for fisherman, working boat launches and cruisers.

Retail Prices

2-blade Propellers		3-blade Propellers	
12 inch.....	\$14.88	12 inch.....	\$20.88
14 inch.....	18.19	14 inch.....	22.32
16 inch.....	19.44	16 inch.....	27.12
18 inch.....	26.68	18 inch.....	31.20
20 inch.....	28.80	20 inch.....	37.68
22 inch.....	33.12	22 inch.....	38.88
24 inch.....	36.00	24 inch.....	48.00

Ask for prices on larger sizes, also Feathering Propellers.

PROPELLER WHEELS

No one type of propeller wheel will fit all classes of boats. Every boat presents a different problem. A light racing boat requires a high speed engine and a racing propeller. A heavy boat, slow speed engine and working propeller. The excuse for misfits of propellers lies in the fact that manufacturing lines are limited to one design. We make all designs of propellers to fit all classes of boats that give the best speed results which save time and money.

We guarantee to replace any bronze wheel broken.

SPECIAL RETAIL PRICES.

Until further notice.

POLISHED BRONZE Right and Left Hand

Two Blade			Three Blade		
Diameter	Net Price Unbored	Net Price Bored	Diameter	Net Price Unbored	Net Price Bored
10"	\$1.80	\$2.25	10"	\$2.10	\$2.55
11"	2.10	2.60	12"	3.30	3.80
12"	2.28	2.79	14"	4.20	4.70
13"	2.70	3.20	16"	5.70	6.30
14"	2.88	3.39	18"	6.90	7.56
16"	3.90	4.50	20"	9.00	9.78
18"	4.95	5.60	22"	10.80	11.70
20"	6.60	7.38	24"	13.80	14.82
22"	8.10	9.00	26"	16.80	18.15
24"	9.60	10.62	28"	20.40	21.90
26"	12.00	13.35	30"	25.80	27.45
28"	15.00	16.50	33"	32.40	34.40
30"	19.80	21.45	36"	39.00	41.40
33"	25.20	27.20	40"	58.80	63.00
36"	28.80	31.20	44"	75.60	82.20
			48"	105.00	113.40

POLISHED GRAY IRON Right and Left Hand

Two Blade			Three Blade		
Diameter	Net Price Unbored	Net Price Bored	Diameter	Net Price Unbored	Net Price Bored
10"	\$.75	\$1.20	10"	\$.88	\$1.33
11"	.88	1.39	12"	1.38	1.89
12"	.95	1.46	14"	1.75	2.26
13"	1.08	1.59	16"	2.38	2.98
14"	1.20	1.70	18"	2.88	3.54
16"	1.63	2.23	20"	3.75	4.53
18"	2.08	2.74	22"	4.50	5.40
20"	2.75	3.53	24"	5.75	6.77
22"	3.38	4.28	26"	7.00	8.35
24"	4.00	5.02	28"	8.50	10.00
26"	5.00	6.35	30"	10.75	12.40
28"	6.25	7.75	33"	13.75	15.75
30"	8.25	9.90	36"	16.25	18.65
33"	10.50	12.50	40"	24.50	28.70
36"	12.00	14.40	44"	31.50	38.10
			48"	43.75	52.15

2½ H. P. Row-Boat Motor, special price Battery Equipment \$45.00. Magneto Equipment \$55.00.

Send for catalog and discount illustrating the most complete line of motor boat accessories.

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1112 Monroe Ave.

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Eastern Branch--69 Cortlandt St., New York City

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FIRE
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A SCIENTIFIC agent which extinguishes every kind of incipient fire—gasoline and electric, as well as the ordinary kind.

"The Most
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Extinguisher
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At Leading Dealers
Everywhere

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LOOK

for our "NOBIND" Stuffing Box and Strut exhibit at the Motor Boat Show.

Don't forget to look us up and you will never regret time spent.

THE UPSON-WALTON CO.

MARINE HARDWARE HOUSE

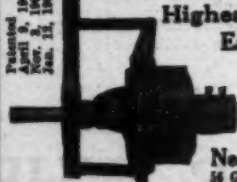
1310 W. 11th ST. CLEVELAND, O.

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The Improved BALL REVERSE GEAR for Motor Boats

Most Reliable
Highest Grade
Easiest to Install

Patented
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Four Sizes Carried
in Stock
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Rice Stock Motor Boats

20-Ft. Special \$275.00 Catalogue "A"
19-Ft. X 5 ft. Ten-passenger runabout \$250.00 "B"
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22-Ft. Auto Family Launch, 4-cyl., 4-cyl. 700.00 "D"
To those wishing to finish their own boat, we will furnish our
Ten-Passenger Runabout Hull, 19 ft. x 5 ft. beam, planed,
caulked and planed, with priming coat of paint inside and out;
gunwales, deck frame, floor beams and engine bed in place, for
\$95.00

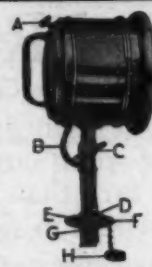
In writing for catalogue state boat in which you are most
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Motor Boating gives a full year's advertising in
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This is an entirely new light
embodying all the good
features of the well known
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several new ideas. It is of special
construction throughout. No
wires to connect after
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Light makes its own positive
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Polished Brass or Nickel finish.
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Here is a stove that is ideal for use on yachts
and boats of any size. It is small, compact, light,
economical, inexpensive, odorless, safe, always
ready for instant use and is thoroughly efficient.

BARTHEL JUWEL YACHT STOVE

Generates gas from kerosene, burning with a hot,
blue flame. The stove is absolutely safe, even if
overturned while lit. Heavy brass tank which
cannot leak. Solidly built, to last indefinitely.
You can stow it away in a locker, out of the way
when out of use, without fear of leaking or odor.

Barthel Jewel Yacht Stoves are supplied in several types, with one or two
burners. They make the most practical stoves obtainable for marine use. Big
enough to cook a whole meal for a party or for living on a boat continuously
during long cruises.

One of these stoves makes a neat, comfortable galley, because it is clean and
odorless, doesn't smoke and is never in the way.

Write to-day for catalog and prices on the different sizes and styles.

Globe Gas Light Company, 25-27 Union Street, Boston, Mass.

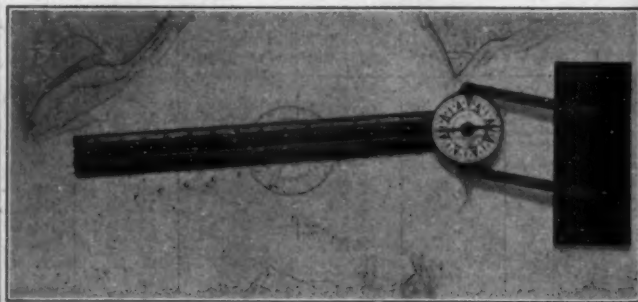


JUWEL 6A.
PRICE, \$4.00.



SCHLEICHER STOVE. PRICE \$15.00, DELIVERED.

Nautical Delineograph or Course Finder and Bearings Instrument



The edge of the plate is placed on any convenient parallel or
meridian. Any number of courses may be taken, the 18 in.
ruler being placed on the course desired. A notch on the disk
represents true north and the north index of the dial is moved
to the right or left to allow for variation and deviation. The
hand indicates the course in points and degrees.

FOR TAKING BEARINGS—If the compass course is N.E., move N.E.
on the dial to the notch. With sights in position in the end of the ruler,
place the long edge of the plate athwartship and take observation. After
allowing for deviation, the hand will indicate the magnetic bearing.
This is really two instruments in one, each efficient for its
purpose.

Complete in mahogany case sent postpaid for \$10.00, with 10
days' trial allowed and money back if not satisfied.
Liberal discount to Dealers. Patent pending.

DIRIGO COMPASSES

An unsolicited testimonial

HOUSTON, TEXAS.

E. M. Sherman, Seattle, Wash.:

Dear Sir—The 3" compass I purchased from you is the best I have ever used. It
beats them all for steadiness in rough water, as well as being perfectly accurate.
Please mail a catalog to H. B. Finch, Houston, Tex. He has just completed a
30-foot launch. You may refer him to me as a satisfied customer if you like.

Yours truly,

(Signed) WILLIAM CLARK.

I consider a satisfied customer my best
advertisement.

There are thousands of DIRIGO compasses
in use. Made in seven sizes.
Also brass and mahogany binnacles.

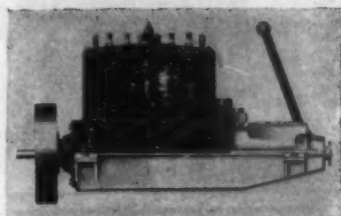
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Manufactured by EUGENE M. SHERMAN,
Box 3, Bellevue P. O., SEATTLE, WASH.

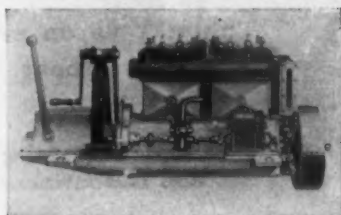


Wisconsin

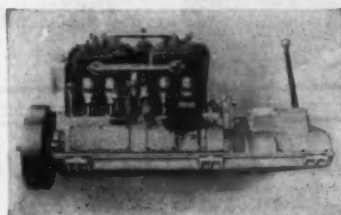
CONSISTENT



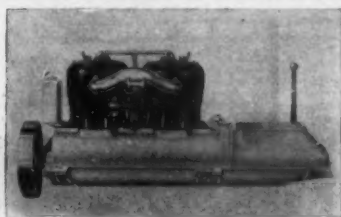
Type QM, 4-cylinder, bore $3\frac{1}{4}$ in., stroke 5 in., Intake view.



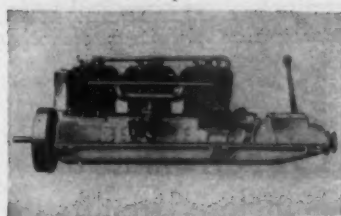
Type CM, 4-cylinder, bore $3\frac{1}{4}$ in., stroke 5 in., Exhaust view.



Type A, 4-cylinder, bore $4\frac{1}{4}$ in., stroke $5\frac{1}{2}$ in., Intake view.



Type DRM, 4-cylinder, bore $5\frac{1}{2}$ in., stroke 7 in., Intake view.



Type LM, 6-cylinder, bore $5\frac{1}{10}$ in., stroke $5\frac{1}{2}$ in., Intake view.

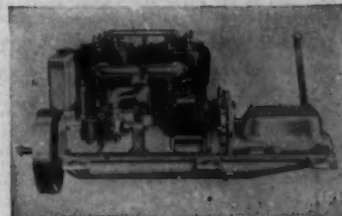
MARINE MOTORS

have won their standing among high grade marine motors by their remarkable record for reliable and consistent performance under all conditions.

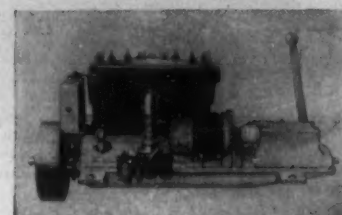
For power, speed, simplicity and accessibility, they are unequalled. Maximum strength and durability are combined with light weight. Large bearing surfaces, high grade materials, correct design and an efficient force feed oiling system are the secrets of their power, speed and long life. The perfect balancing of all reciprocating parts insures smooth and quiet running.

Wisconsin Motors were awarded a special cup for quiet running and flexibility in the motor boat race at Christiania, Norway, in which they won first prize. They are holders of the world's record for 450 cubic inch class.

If you are not familiar with Wisconsin Motors, write now for new catalog, giving illustrations, drawings and specifications of all the different types. Invaluable to those contemplating the purchase or reconstruction of motor boats.



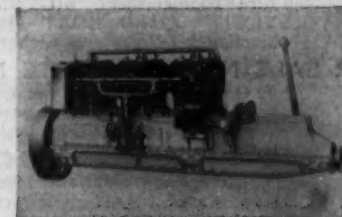
Type BM, 4-cylinder, bore $4\frac{1}{4}$ in., stroke 5 in., Intake view.



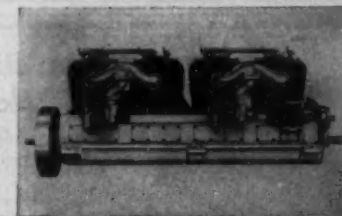
Type EM, 4-cylinder, bore 4 in., stroke 5 in., Intake view.



Type DM, 4-cylinder, bore $5\frac{1}{4}$ in., stroke 7 in., Intake view.



Type VM, 6-cylinder, bore $4\frac{1}{4}$ in., stroke 5 in., Intake view.



Type N, 8-cylinder, bore $5\frac{1}{10}$ in., stroke $5\frac{1}{2}$ in., Intake view.

WISCONSIN MOTOR MFG. COMPANY
Sta. A, Dept. 99 MILWAUKEE, WIS., U. S. A.

Jeffery's Marine Glue

No. 7 Black, White & Yellow
For Covering Boats and Decks with Canvas

Directions for Use.

STRETCH THE CANVAS THOROUGHLY BEFORE LAYING

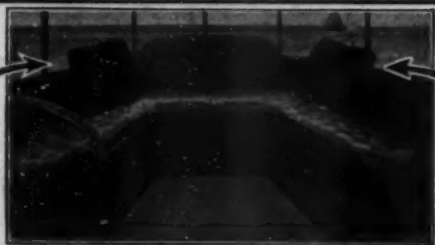
The Glue for this purpose is of a softer quality than that used for Batteries and Yachts' Decks. After being melted over a moderate fire, spread the Glue on the surface of the wood or iron with a stiff wire-bound brush, leaving on a good body; lay the canvas on the Glue and pass an ordinary hot iron over the canvas and make the Glue sweat through, taking care not to have the iron so hot as to scorch the canvas. (Experience will immediately show the heat required.) Another way of application is to coat the canvas on one side and lay it glued-side downwards on the wood, or other substance requiring to be covered, passing the iron over as before—the canvas will then be found perfectly waterproof, and adhering tightly to the wood, etc. In the course of a few minutes a thin coating of Glue over the canvas may be added (if desired) and the iron again passed lightly over it. A few galvanized tacks should be added to the edges and angles where necessary. The canvas should be given a heavy coat of shellac before the paint is applied.

One pound will Waterproof 3 square feet of Canvas

Send for booklet "Marine Glue, what to use and how to use it."

L. W. Ferdinand & Co.

201 South St., Boston, Mass. U. S. A.



Showing life-preserver cushions in cockpit of motor yacht.

The pillows resting on seat cushions

are our regular 16 in. Life-preserver Pillow Cushions. Price, 85c. each, \$9.00 per doz.

WE are making a specialty this season of our Life-preserver Cushions, covered with genuine Morocco, with filling of Prime Java Kapoc, the lightest and most buoyant filling known. To stimulate the early placing of orders, we will accept a limited number of orders for these cushions at a special price of seventy-five cents per square foot. Send for our booklet showing interior views of our work on some of the finest yachts and steamships.

**CUSHIONS
THAT FIT!**

Manufactured since 1845, by

M. W. FOGG, NEW YORK

Marine Accessories At Big Bargain Prices

SPECIAL CLASS ONE outfit, consisting of four (4) Government passed cork jacket life preservers, Fire Extinguishers, BIG BRASS NOISY "DETROIT" AUTO BOAT HORN, two-way combination headlight and anchor light.

FOR SALE NOW COMPLETE NET \$10.00

F. O. B. Detroit. This outfit, suitable and required by the Government on all power boats under 26 ft. in length, usually sells to dealers at net \$15.00.

You can get it NOW for \$10.00

Send for this outfit and complete Accessory Catalog. Mailed FREE on request.

MICHIGAN STEEL BOAT COMPANY

1234 Jefferson Ave.,

Detroit, Mich.



This Big Boat Top Catalog is Free!

Kenyon boat tops, hoods and cockpit covers are the last word in boat equipment. Waterproof, sunproof, attractive, light in weight and durable.

Boat tops have rustproof frames and are built to order to fit your boat—guaranteed to fit perfectly.

Send for the catalog now and some day you'll be glad you did.

THE R. L. KENYON COMPANY

429 Meadow Street

Waukegan, Wis.

Marine **Kahlenberg** Engines

HEAVY DUTY
OIL

For severe Heavy Duty service in cruisers, commercial boats, tugs, etc., the Kahlenberg "Semi-Diesel" type engine is so far in advance of other marine power plants that it has no real competitor in efficiency and economy.

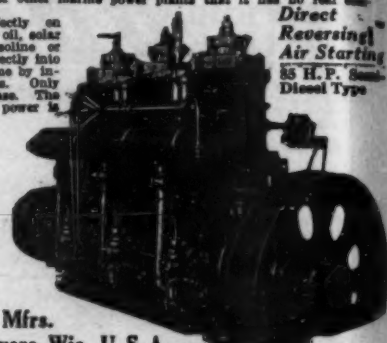


The engine operates perfectly on crude (fuel) oil, kerosene, gas oil, cedar oil, etc., as well as on gasoline or distillate. Fuel is injected directly into each cylinder at the proper time by individual fuel injection pumps. Only pure air is taken in at the base. The cost of operation per unit of power is lower than has ever been achieved. The patented internal hot bulbs are adjustable so that the compression can be changed as desired while the engine is in operation. We Build Engines from 2 H. P. Up. Medium Duty and Heavy Duty. No matter what kind of marine power you need let us tell you the exclusive advantages of the Kahlenberg model which is built for your purposes. There isn't a better engine in design, materials or workmanship. It isn't fair to yourself to buy another engine before you have our catalog.

Get your Catalog "to-day"

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12th and Monroe Sts. Two Rivers, Wis., U. S. A.

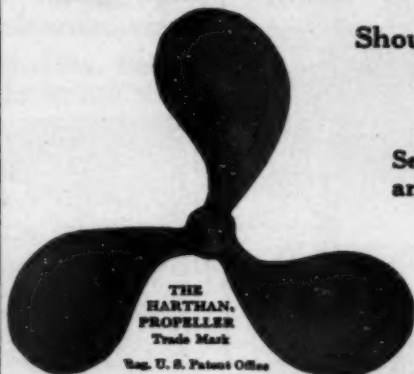


Direct
Reversing
Air Starting
85 H. P. Semi-
Diesel Type

GENUINE HARTHAN PROPELLER

Should be on every
power boat

Send for catalog
and be convinced



THE
HARTMAN
PROPELLER
Trade Mark

Reg. U. S. Patent Office

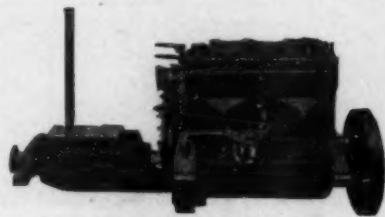
**McFarland Foundry
and Machine Co.**
Trenton, N. J.

The ERD 25 H. P. 4-Cyl. 4-Cycle Unit

Marine Power Plant Represents
the Last Word in Motor Design,

and is the perfected product of sixteen years' experience.

This motor will do in your boat everything you could possibly desire and then some. Send for our catalog and prices. Our line includes 2-cycle Standard type and Featherweight Racing Machines.



ERD MOTOR CO.

Saginaw, W. S., Mich.

Write for 1915 literature on
new Scripps inclosed motors.
See models at the Show.

Scripps Motor Co.

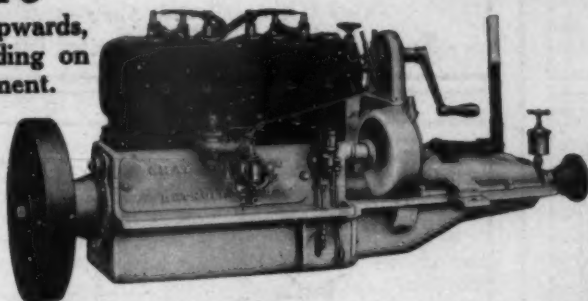
631 Lincoln Ave., - Detroit, Mich.

GRAY 4 CYCLE

Model D

\$210

and upwards,
depending on
equipment.



Every inch a Marine Motor. Bore $3\frac{3}{4}$ inches, stroke $4\frac{1}{2}$ inches.

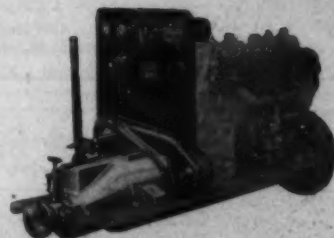
16-20 H.P., but guaranteed to
develop actually 25 H.P.

Unit Plant or Bare Engine.

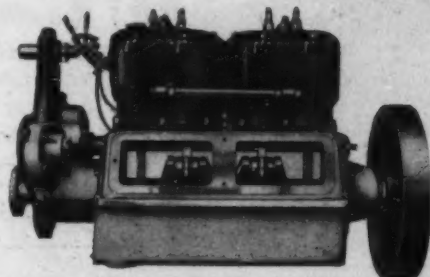
Aluminum or Iron Base.

Hand Rear Starter—built in the
motor.

Electric or Air Self-Starter, easily
attached.



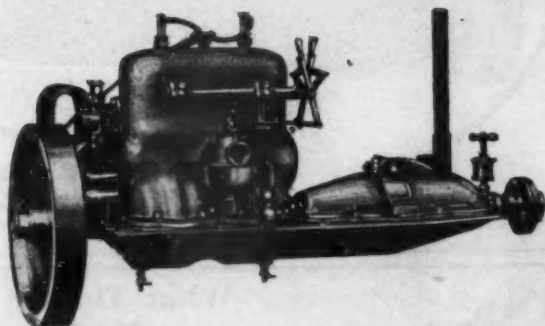
Standard equipment for every 30,
40-50 H.P., 4-cycle, 4 and 6-cyl.
Model "C" Gray motor. Every con-
venience and refinement known to
engine construction.



Showing the accessibility of this wonderful
marine motor. Big Hand Hole Plates
on both sides.

An ordinary
wrench will
reach any
bolt or nut on
this motor.

GRAY 2 CYCLE



The most up-to-date two-cycle motors
in the world.

\$55.00 upwards

The Gray Motor Company are the recognized
leaders in the world in products of the 2-Cycle
type motor.

We sold more 2-cycles in 1914 than we did in
1913—because a man can get more power for a
dollar in a 2-Cycle Motor than in any other kind
of gasoline motor built, and Gray Motors are
good motors.

We build our 2-Cycle motors as carefully as any
motor in the world is built, regardless of price.

We are spending thousands of dollars a year in
improving our 2-Cycle motor and its production
—to build a better motor for less money. That's
why we succeeded—always trying to give a bet-
ter motor and producing it in such quantities as
will reduce its cost to us and to you.



BIG TWO-CYCLE ANNOUNCEMENTS LATER

GRAY MOTOR COMPANY

274 GRAY MOTOR BUILDING

DETROIT, MICHIGAN

Johnson V-Type Marine Motors



**Greatest High Speed
Engine in the World**

No built-up makeshift, but a design embodying new, scientific principles meeting every exacting demand of continuous high speed.

Light Strong Compact

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60 to 180 H.P.

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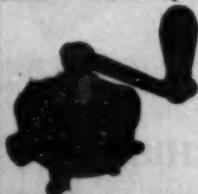
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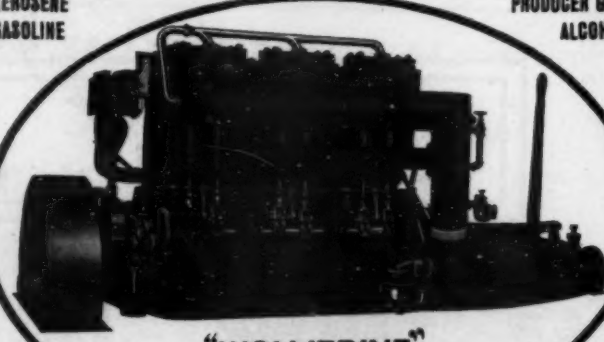
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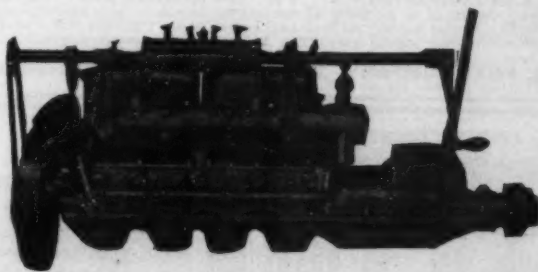
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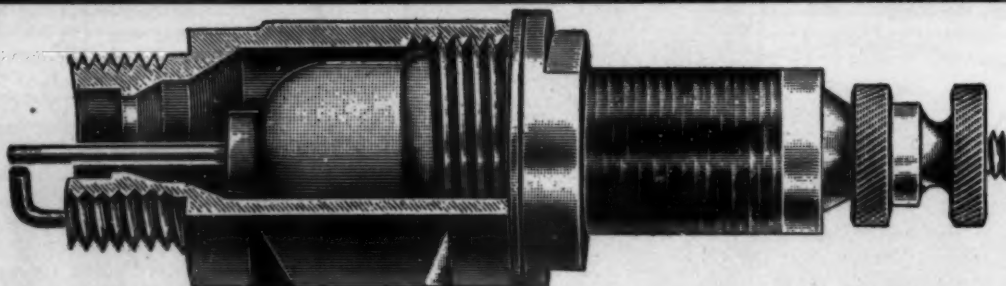
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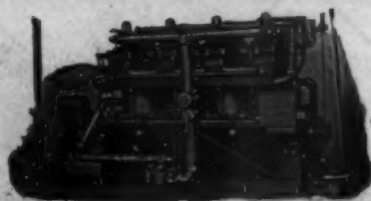
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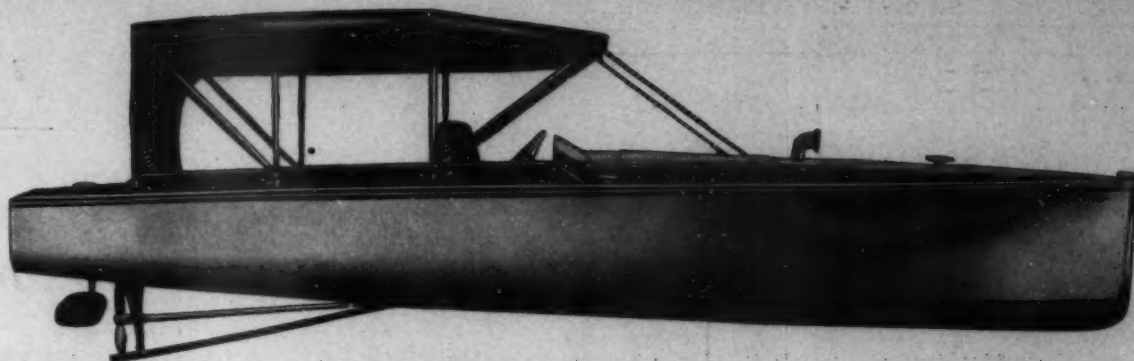


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TRANSOM, COAMING, DASH AND COWL—Finest Ohio Black Walnut.

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DECK—Turtle back deck of light but substantial wood construction, heavy canvas cover with canoe finish; afterward given three coats best marine varnish, beautiful, thoroughly waterproof.

FINISH—Outside hull three coats, bottom three coats; inside hull, two coats marine paint; all interior woodwork highly finished, three coats marine varnish rubbed to smooth surface.

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FITTINGS—Deck fittings: polished brass, our own design, ventilator, one piece pressed brass, highly polished; rudder, bronze, galvanized malleable iron "Y" brace and skeg for support of shaft and propeller.

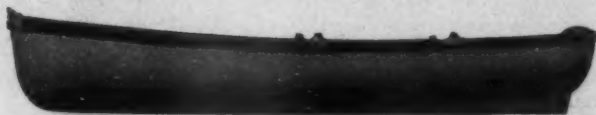
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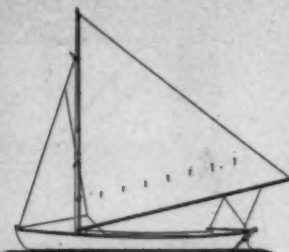
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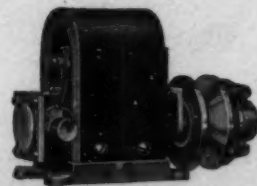
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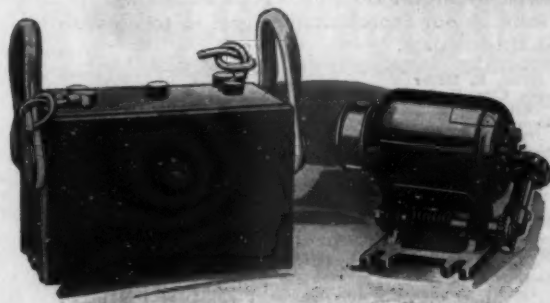
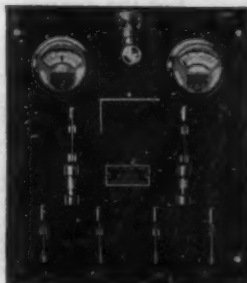
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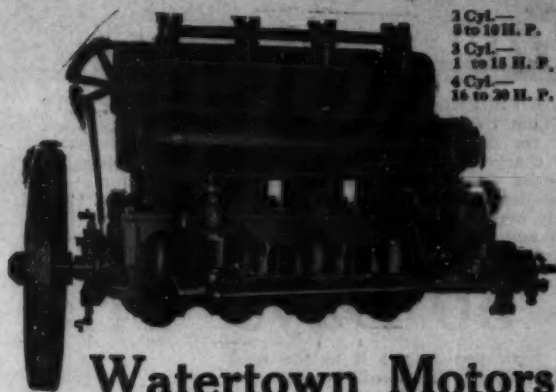
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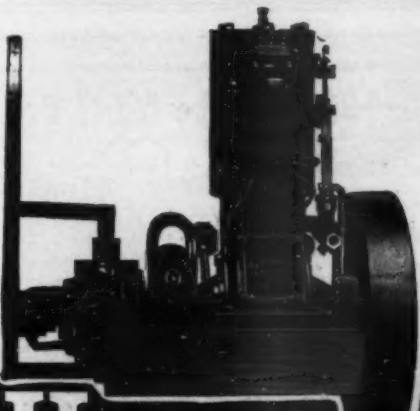
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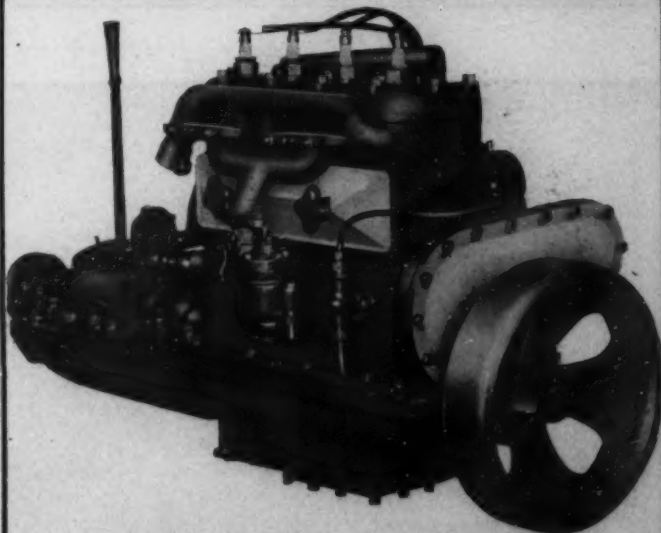
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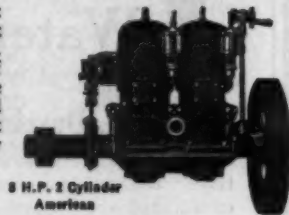
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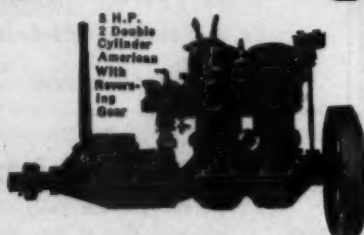
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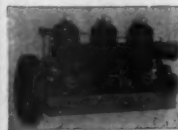


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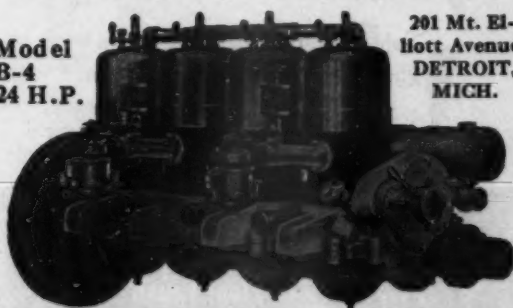
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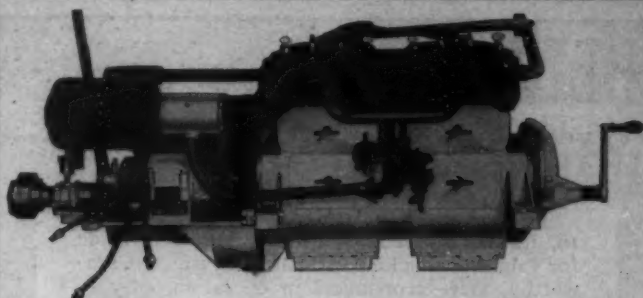
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B-4
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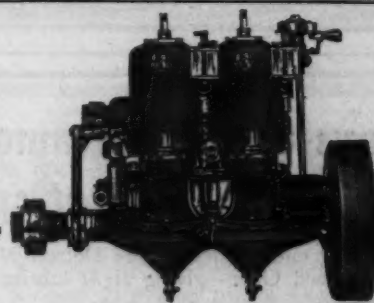
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And it performs that duty faithfully.

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with the
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GORDON

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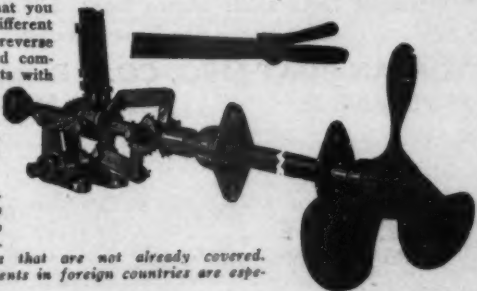
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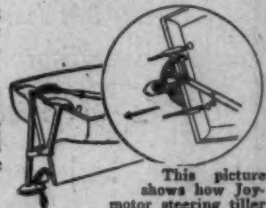
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We are exhibiting at both the New York and Chicago Show

Standard Auto-Boats

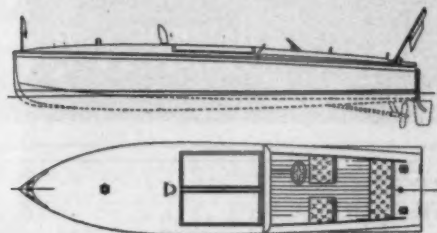
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If you are in the market for a semi-speed runabout of 20 or 25 feet, investigate at once the two new models of Standard Auto-Boats. These boats present more advantages at lower cost than have ever been offered at any time in the past. They are just the kind of boats every motor boatman has wanted to own.

Up-to-the-Minute in Design and Construction. Furnished Complete or Knocked Down.

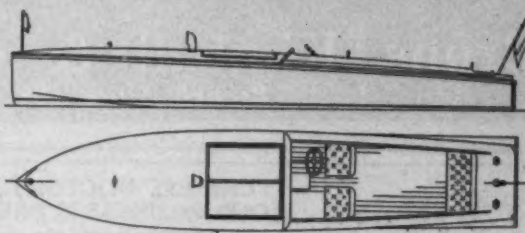
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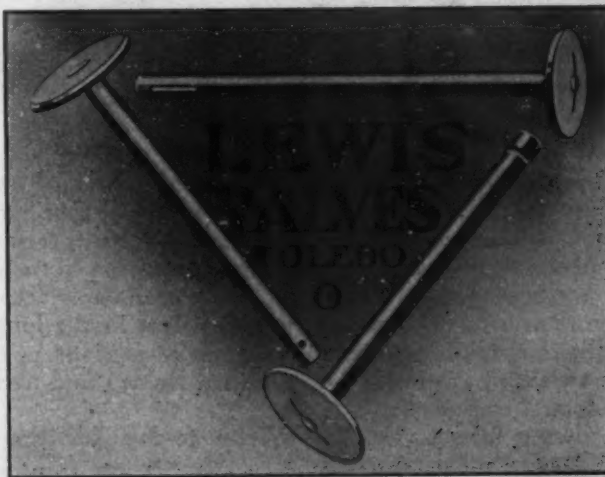
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THE SILENT ENGINE

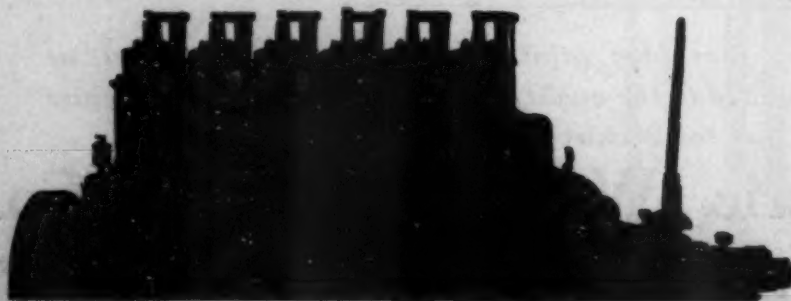
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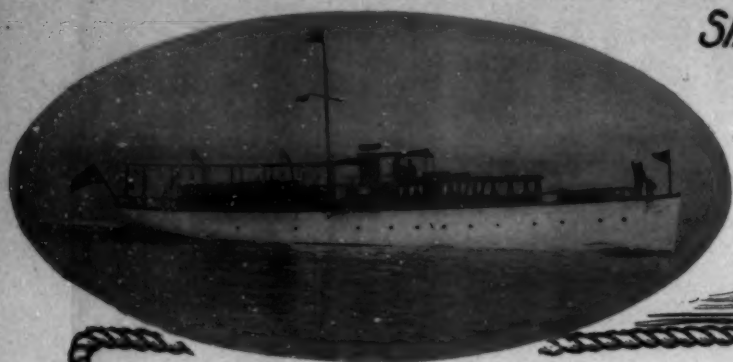
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32-Ft. Runabout Designed and Built for P. A. Rockefeller, of New York

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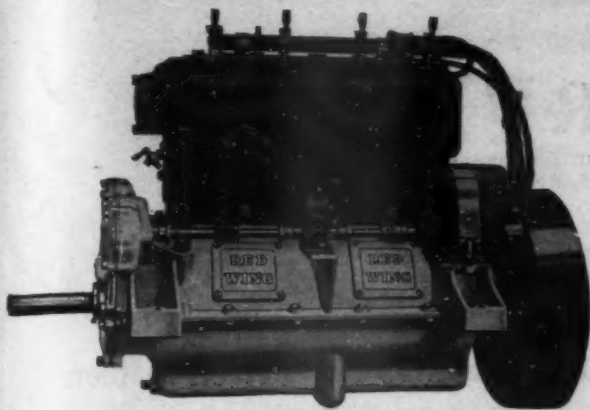
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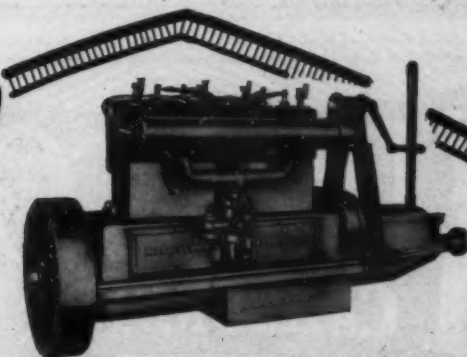
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DO YOU WANT A QUALITY MOTOR AT A REASONABLE PRICE?

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Weight only 525 lbs., complete.
Four Cylinders, Bore 4½", Stroke 5".
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Die Cast Nickel Babbitt Bearings with Laminated Shims.
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Constant Level Splash Lubrication with Gear Oil Pump.
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Many Other Features.

This engine gives 25 H.P. at 850 R.P.M., and is guaranteed to give its full power on brake test. It is economical, smooth running, quiet, clean, never overheats and is as flexible in control as an automobile engine. The carburetor gives uniform results at all speeds. If you have a hydroplane, runabout or cruiser requiring about 25 H.P., or if you intend to build one of these, ask us for further data.

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Four to fifteen
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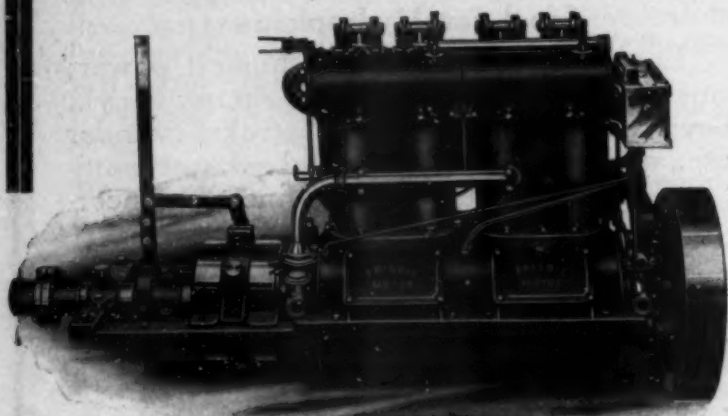
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Explain the Efficiency of the FRISBIE FOUR CYCLE MARINE MOTOR

Frisbie Motors are undeniably superior to most other high grade marine motors in efficiency, power, economy and durability—and the reason is the famous Frisbie Overhead Valve construction.

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10 MODELS 3 to 75 H. P. 1 to 6 CYLINDERS
GASOLINE KEROSENE DISTILLATE BENZINE

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PHANTOM VIEW

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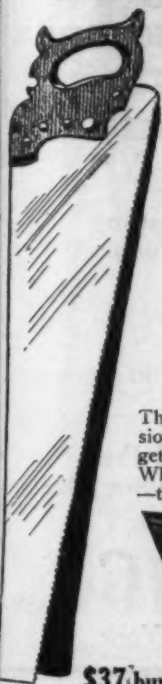
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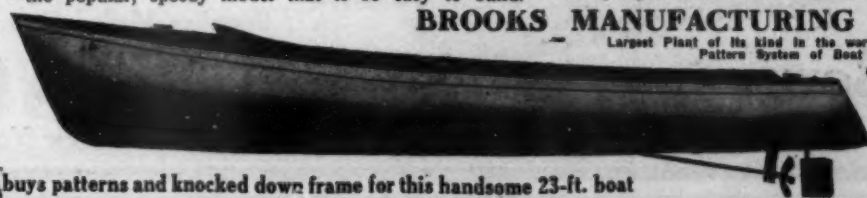
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\$37 buys patterns and knocked down frame for this handsome 23-ft. boat

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The Wheel that leads in the United States



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Prices F. O. B. Factory
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An Ideal 43-Ft. Cruiser-Houseboat Finished According to Your Own Ideas!

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A-splendid type for cruising in rivers and inland waterways or at sea, as desired. Easily handled by one man. Roomy—ample light—good ventilation—hot water heat. 43 ft. x 12 ft. with but 2 ft., 10 in. medium draft. Economical in upkeep and reasonable in price. Will make 9 miles per hour with 20 or 24 h.p. motor. A good sea boat.

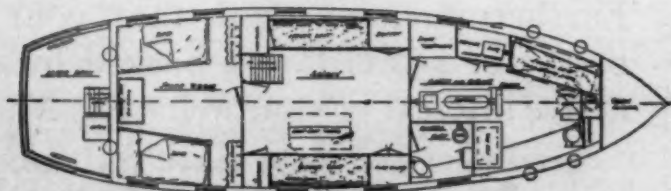


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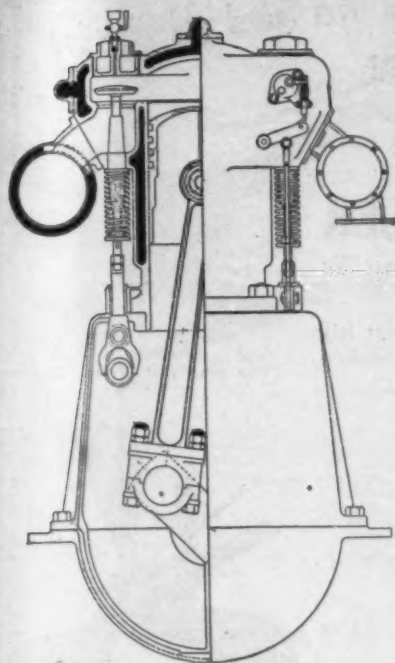
Cooper's Point Camden, N. J.



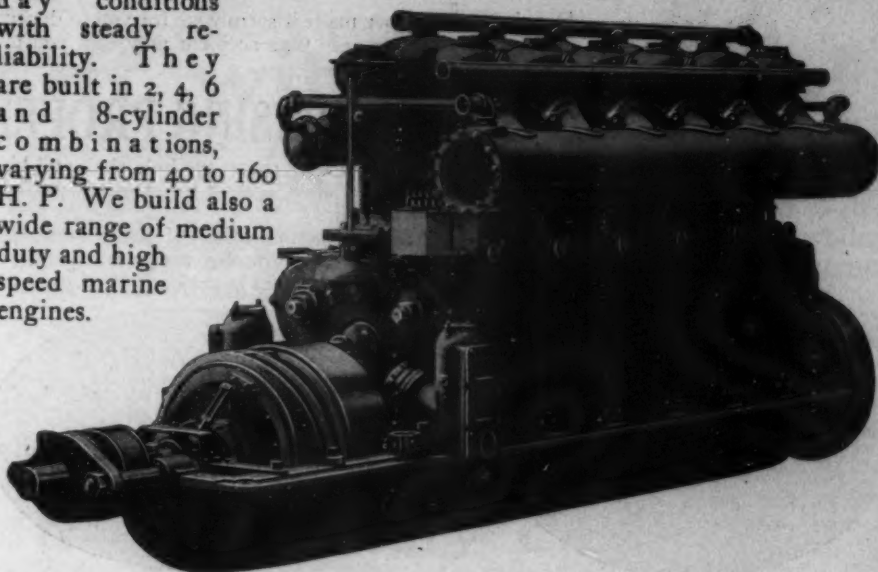
Interior arrangements. One double stateroom, sleeping two in beds. Saloon with drop table and sleeping accommodations for four. Galley, engine-room and crew's quarters in combination.

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7 to 160 H. P.



Our Heavy Duty Type N Engines are not only good to look at, but they bear the closest inspection with satisfaction to the customer. They look good also after years of service, because they meet every-day conditions with steady reliability. They are built in 2, 4, 6 and 8-cylinder combinations, varying from 40 to 160 H. P. We build also a wide range of medium duty and high speed marine engines.



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THE REASON WHY

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DOMAN SIX

The ideal motor for large cruisers, ferry boats, fishing boats, etc., where both speed and power are required. Doman sixes are built in 40, 50, 60 h.p. and have the best equipment the market affords. Furnished with salt water equipment when desired.



THE RIGHT MOTOR FOR EVERY BOAT

Doman Motors are built in all popular sizes from 1 cyl., 6 h.p. to the big six-cylinder with 120 cylinders—medium duty, heavy duty and high speed types. Write for our catalog which shows all sizes and explains why the Doman is mistress of inland waters and open seas as far as small craft are concerned.

THE EVIDENCE

of Doman Superior Service is given in the Doman Owner's Book, which we'll also send you. Ask for the two books today—now!

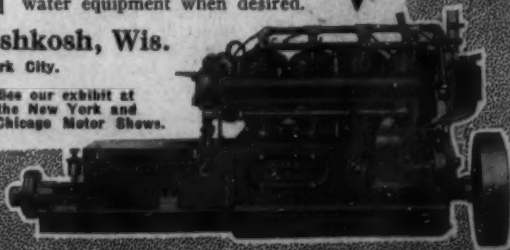
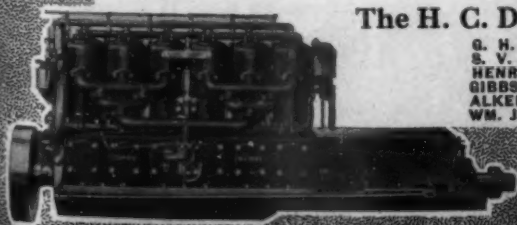
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Built in 20-30 h.p.—medium duty type. The right motor for small cruisers, launches, work boats and anywhere that requires a motor which never gives up, no matter how rough the water. Best of equipment. Furnished with salt water equipment when desired.

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Speedy As a Speed Wheel, Strong As a Solid Casting, Perfect Control Over Speed and Direction

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My Reversible Engine had spells of forgetfulness.

Has the economy bee made it seem wise for you to depend on a so-called reversible motor? One accident may cost you many times the cost of a

W & M REVERSING PROPELLER

There are but three working parts, the hub, shell and blades. We guarantee the hub and shell against breakage through the blades striking an obstruction.

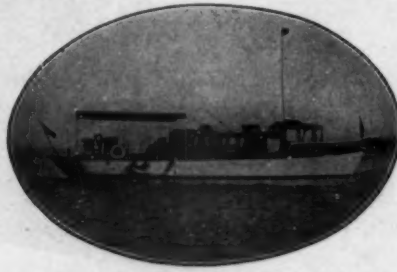
A reversible gear is a complication of many small parts. It's heavy—greasy—dirty. More fit for use overboard as an anchor than for a reversing mechanism in the cockpit of your boat.



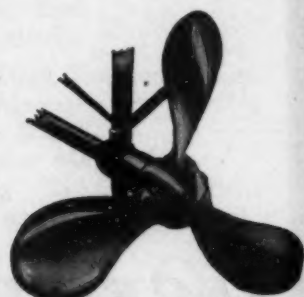
One small part breaks. The gear balks.



Have used outfit six years. It's fine—B. F. Dandurand.



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Reverse Speed Wheel

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Wisconsin Marine Motors



No matter what your motor requirements are, there's a Wisconsin that will meet them exactly. And, from our big sixty-horse Six down to our Detachable Row Boat Motor, every engine we make has proved its worth in years of actual use. No experimental features—no detail of doubtful value. Every motor is exhaustively tested before it leaves our plant. It must develop, on brake test, more than its rated power. We back it with a most sweeping guarantee. It's right in every detail. We know how to make marine motors right—we've been doing it for 13 years.

If you're interested in our Valveless Motors, write for complete Catalog "P." If interested in the Detachable Row Boat Motor, ask for Catalog "M." Get these books before you put a penny into any motor.

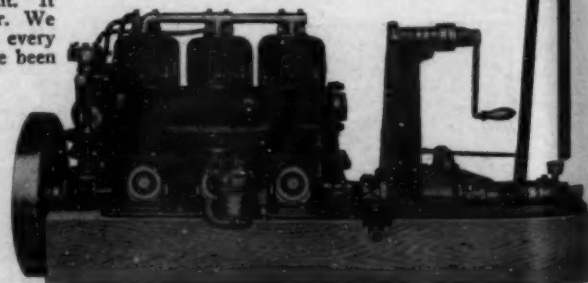
Wisconsin Machinery & Mfg. Co.
Hildreth Street Milwaukee, Wis.

Wisconsin Valveless Motors

This famous line of marine motors includes eight sizes, adaptable for all marine purposes: 5-H.P. Single, 7-H.P. Single, 10-H.P. Double, 15-H.P. Double, 18-H.P. Three, 25-H.P. Three, 40-H.P. Four and 60-H.P. Six. These are the only two-cycle motors with a safe guarantee against Back-Fire or Base-Explosion regardless of speed or load. They are perfected two-cycle engines, and the perfected two-cycle is far superior to any four-cycle for marine work. All moving parts, except flywheel, enclosed. Direct, positive oiling. White metal and phosphor-bronze bearings. Jump spark ignition. Unquestionably the steadiest-running, most powerful, most durable marine motors built.

Wisconsin Row Boat Motors

Among the many makes of outboard motors on the market, the Wisconsin stands out as the safest "buy"—because it is built on sound engineering principles all through, by men who have been marine engine builders for many years. For steadiness, power, lack of vibration and durability it is a typical Wisconsin. High Tension Reversible Magneto gives positive ignition at even the lowest speed. Rudder steering—complete control when power is off. Interchangeable phosphor-bronze bearings. Weighs only 50 lbs.





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Push the button! Watch your engine get into action! Get away with the gun!

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Fulton Manufacturing Co.....Erie, Pa.
Gilbert Motor Boat Co., Ltd.....Brockville, Ont.

Ginman Boat Co.....Muskegon, Mich.
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Loew Victor Engine Co.....Chicago, Ill.
Matthews Boat Co.....Port Clinton, Ohio
Milwaukee Yacht & Boat Co.....Milwaukee, Wis.
W. H. Mullins Co.....Salem, Ohio
Niagara Motor & Mfg. Co., Inc.....Dunkirk, N. Y.
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Regal Gasoline Engine Co.....Coldwater, Mich.
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Willard Storage Battery Company

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Sea Sled for United States Navy



Note these efficiencies: Weight of boat on trials 4500 pounds. Twin engines, 4 cylinder, 4 1-2" x 6". Guaranteed speed, 35 miles, speed on Navy trials, 36-45 miles, R.P.M. 1625.

Murray & Tregurtha Co.
340 West First St., South Boston, Mass.

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THE 1915 MODEL MILLER

is a true unit power plant of wonderful efficiency. Cylinders are cast en bloc with special provision to make easy removal of pistons possible. Fly-wheel is placed close to the reverse gear where it gives more direct power, and all moving parts are enclosed. Miller Motors are of the four-cycle type, built with one, two and four cylinders, from 4 to 60 H.P., designed to meet every requirement. There isn't a cleaner, more attractive and more up-to-date Engine made. It is furnished with the complete marine equipment, no extras being necessary, and price is right.



Miller Portable Motor With Reversible Propeller

This is without question the highest development of Portable Motors, the Motor that has broken all previous records. The reversible propeller is operated by the steering lever through patented mechanical devices. A forward, reverse and neutral position is provided for, and changes from one to the other are instantly made. No slacking down of speed to reverse, no cranking of motor in opposite direction. A mere touch of the lever gives absolute control of motor and boat. The Miller is the perfect Outboard Motor of the future. It is strictly high grade, furnished with Battery ignition, or Bosch Waterproof Magneto with advance.

Write us to-day for complete catalog and other information.

Miller Gas & Vacuum Engine Co.

2329-2331 N. Talman Avenue

Chicago, U. S. A.



Type No. 206
200 A. H. Capacity

THOMAS A. EDISON

THOMAS A. EDISON, Inc.

261 Lakeside Avenue

Orange, N. J.

Do you get Dependability and Economy from your Ignition Batteries?

Three features stand out prominently in connection with the Edison Sparking Outfit, viz: simplicity, reliability and economy.

A casual inspection of the various ignition systems is sufficient to bring out the first point, the simple Edison Outfit with but one connection to a cell, as against the multiple battery scheme with its bank of short-lived cells or mechanical ignition with its moving parts.

On the score of reliability little need be said of the

Edison Primary Battery

The fact that it is standard on practically all closed circuit work, and is used extensively for open circuit service where dependability is essential, speaks for itself. Ignition requires an almost constant flow of current, and a cell capable of hard work such as the Edison should be used.

Many people have had the unsatisfactory experience of losing a large amount of energy on account of the cells drying out and this trouble can be avoided by the use of Edison Primary Cells. The Edison Cells are, therefore, economical, because they make the best use of material, and because the active material costs less per unit of energy than in primary cells of other types.

Catalog and ignition folder on request



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Cruising with a Racine Cruiser will capsize all your pleasures. With this cruiser you can cruise in any waters with a sense of comfort and safety. In any boat company, you will need no apologies for your

RACINE CRUISER

It expresses our ideas of luxury in water craft gained through twenty years of boat building. If you want the utmost in cruiser elegance and efficiency you'll own a Racine. Write for catalog.

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Racine Boat Company

RACINE, WISCONSIN

JOE'S REVERSE GEARS

A STANDARD by which all marine reversing mechanisms are gauged for strength, reliability, quietness, durability, weight and price. Don't buy a gear "just as good." Get Joe's Gear. Sizes and types for every kind of boat. Joe's gears are considered good enough to be adopted by such standard manufacturers of motors as the Holmes Motor Co., Loew-Victor Engine Co., Buffalo Gaso-

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Joe's Duplex Drive, the only heavy duty gear with the same speed ahead and astern that does not depend on locked gear teeth for forward drive. The gearing is quadruplex and the duplex friction drive takes the strain off the gearing on the go ahead. Particularly adapted to tow and ferry boats. Also for high power, high speed pleasure or racing craft.

Joe's High Power Gear, for fast and medium speed motors. Reverse speed 75% of forward.

Joe's Positive Neutral One Way Clutches, for high speed motors in hydroplanes and boats not requiring a reverse gear where great driving power, light weight and limited space are important factors. Regular duty one way clutches for the fishing trade which can be used in connection with hoists.

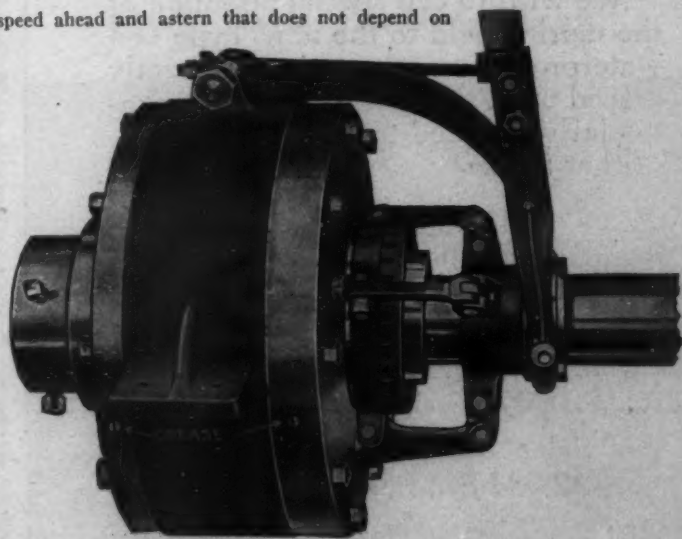
Joe's Safety rear starter made in two sizes up to 40 h.p.—larger ones on order. The only noiseless reliable non-kicker on the market. Write today for catalog, giving us details of your requirements.

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Enters Marine Field

With the increasing of our manufacturing facilities to their present condition, the Eisemann Magneto Company is now prepared actively to enter the marine field.

Up to the present time it has been impossible to establish manufacturing conditions in the United States that would warrant us in departing from the automobile and truck fields.

But now we have finally reached a position where we can not only care for our extensive business in this field (more than eighty manufacturers in this country alone now use Eisemann equipment as standard on their products), but can branch out into other fields as well.



We wish to call special attention of the marine field to the new Type G-4 waterproof magneto just recently placed upon the market, which is particularly adapted to the requirements of that field.

We will gladly furnish you with complete details of this our latest and most advanced product if you will but make the request.

The Eisemann Magneto Co.

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UNMATCHED SPEED Extra Power No Vibration

SPEED that runs away from any other rowboat motor—power to carry heavier loads—no vibration to shake the boat or mar the pleasure of riding.

2-Cylinder KOBAN ROWBOAT MOTOR

The 2-cylinder Koban is the wise man's choice this year. Last season's records proved its mettle. Absolutely dependable under all conditions—easy to start—reverses while running by simply pressing the button—best ignition outfit brain and money can devise.



2 Cylinders Racer Type

The Koban Motor has 2 opposed cylinders—that's what removes the vibration—3 H.P.—nearly double that of other motors—speed line propeller. The Koban is beyond question the most capable and best constructed rowboat motor on the market.

Write for 1915 Catalog

Send for illustrated catalog showing 1915 models, prices and convincing proof that the Koban is vastly superior.

AGENTS WANTED

We are now rapidly closing up 1915 agency contracts. Big talking points make sales easy. An order comes fast as soon as engine is shown and demonstrated; make your application at once if you are ready to actively promote the sale of the 2-cylinder Koban Motor this year.

KOBAN MFG. CO. 246 South Water St. **Milwaukee**



**One Firm One Service
One Guarantee**

**Stands Fairly and Squarely
Back of Every J-M Accessory**



**Far Carrying in
Tone**

**Loud in Volume
Economical in
Use of Current**

The three qualities which you want most in a motor boat horn stand out strong in the

Electric Motor **LONG HORN** **\$10.00 Complete**
INVENTED BY C. F. LONG

Produces that long, rolling, commanding note that c-a-r-r-i-e-s. Response to button is instantaneous. Smooth-turning rollers, set in rotor, actuate striking pin with minimum friction, thereby reducing current consumption to a minimum.

Finishes: Black-and-Brass, Black-and-Nickel and All-Black. Sold under the J-M unqualified guarantee of "Permanent Satisfaction or a New Horn." Only a horn of thorough excellence could possibly warrant such broad-gauge backing.



**A Reliable Engine
Speed Indicator
for Motor Boats**

Do you have to guess at your engine's speed, or are you able to tell exactly by consulting your

JONES TACHOMETER

Indicates engine speed in revolutions per minute. An absolutely infallible instrument built on the centrifugal principle of the Jones Speedometer for automobiles, and equally immune to the effects of changes in temperature, vibration and electrical influence. Graduated to 640, 1280 or 2560 R.P.M. Can be installed in engine room or on bridge and is indispensable on twin screw craft for keeping both screws at the uniform speed that insures easy steering. Price complete with fittings, \$30.

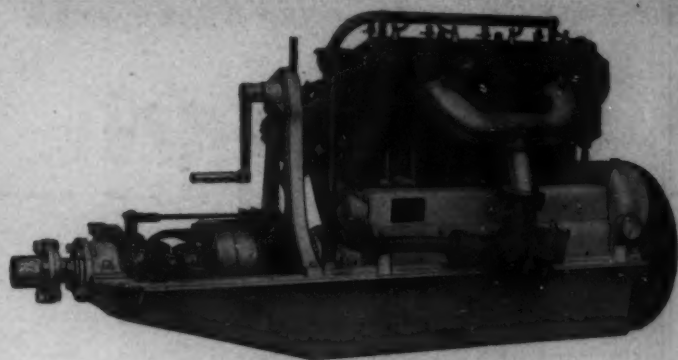
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Sturtevant
(REG. U. S. PAT. OFF.)

Marine Motors

An extremely high grade product for use in fast cruisers, runabouts, hydroplanes and racing boats where light weight, high speed, and absolute reliability are required.

A complete line, embodying the most advanced practice, compact design, light weight and highest grade workmanship and material, superior in every way to anything on the market.

Large valve areas, light reciprocating parts, high pressure forced lubrication give maximum power, minimum vibration, and long life with continuous operation at high speed.

Built in the following sizes:

**Four-Cylinder 75 Horsepower
Six-Cylinder 150 Horsepower
Eight-Cylinder 200 Horsepower
Twelve-Cylinder 300 Horsepower**

A product of one of the oldest and largest manufacturing concerns in the country.

B. F. Sturtevant Company
Hyde Park, Boston, Mass.



Two 75 H.P. Sturtevant Motors Installed in the Record-Breaking U. S. Navy Sea Sled.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.



66' x 10½' x 3½' High-Speed Cruiser CELERITY. Speed, 20 miles per hour. Two medium-duty 8-cylinder 5½" x 6¾" STERLING motors installed. Motors equipped with deck controls, electric starters and built for hard service.

A successful type of boat, that has been becoming more and more popular. The following wire received from the owner, is another demonstration of Matthews' Service.

Am on my way to Florida. The more I see of CELERITY, the more I am pleased with her. She is complete in every detail.
C. S. CUMMINGS, Delaware City, Del.

The Matthews Boat Co.

Port Clinton, Ohio

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CRAFT

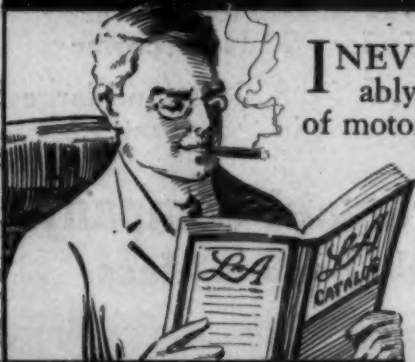
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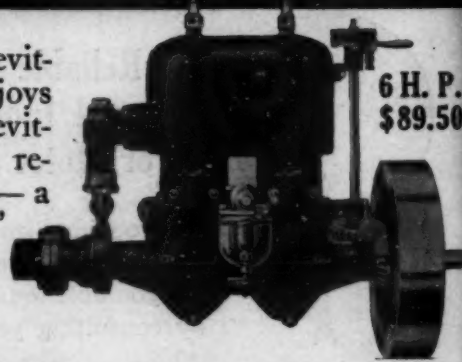
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INEVITABLY, winter will pass. Inevitably summer with the ever alluring joys of motor boating will return. Just as inevitably you will want a staunch, reliable Lockwood-Ash Motor — a motor that's always "on the job." So why not take time by the forelock, and choose your motor NOW?



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L-A
Rowboat
Motor
\$54.75

Lockwood-Ash Motor Co.

232 Horton Avenue

Jackson, Mich.

Safety First



Get a

Paragon Reverse Gear

When a huge old buoy suddenly looms up only a few feet dead ahead, there's not a second to lose. When you have to reverse—and **reverse quick**—you'll be glad that you have a Paragon Gear. If there's one place where absolute reliability is most essential, it's in a reverse gear. Nothing but the best and safest the market affords should be tolerated. Get a Paragon.

Paragon Quality Proved by Paragon Popularity

The builders of the finest engines who want to give their customers all the value possible use Paragon Gears. It is certain that these builders would manufacture their own gears if the Paragon was not all they could desire. The fact that manufacturers of this class have selected the Paragon in preference to all others is ample proof of Paragon superiority.

Paragon Gears excel in reliability, strength, quietness and durability—in correctness of design, perfection of materials and excellence of workmanship. Made for all powers, and all sizes and types of boats.

The New Enclosed Paragon

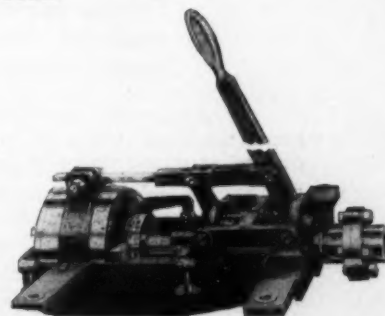
illustrated with the cover off at the right of this page marks a new epoch in enclosed gears.

Here you will find every single feature that has resulted in the Paragon's former superiority, and in addition the big advantage of enclosure. Not a single quality feature has been sacrificed to attain this enclosure, but, on the other hand, several operating improvements have been incorporated. It's the biggest gear value on the market. Its compact appearance adds class to any boat.

Write for descriptive folder.

Write to-day for the Paragon Catalog.

We have a live proposition for a few more reliable agents. Write on your business letter head.



EVANS STAMPING & PLATING CO.

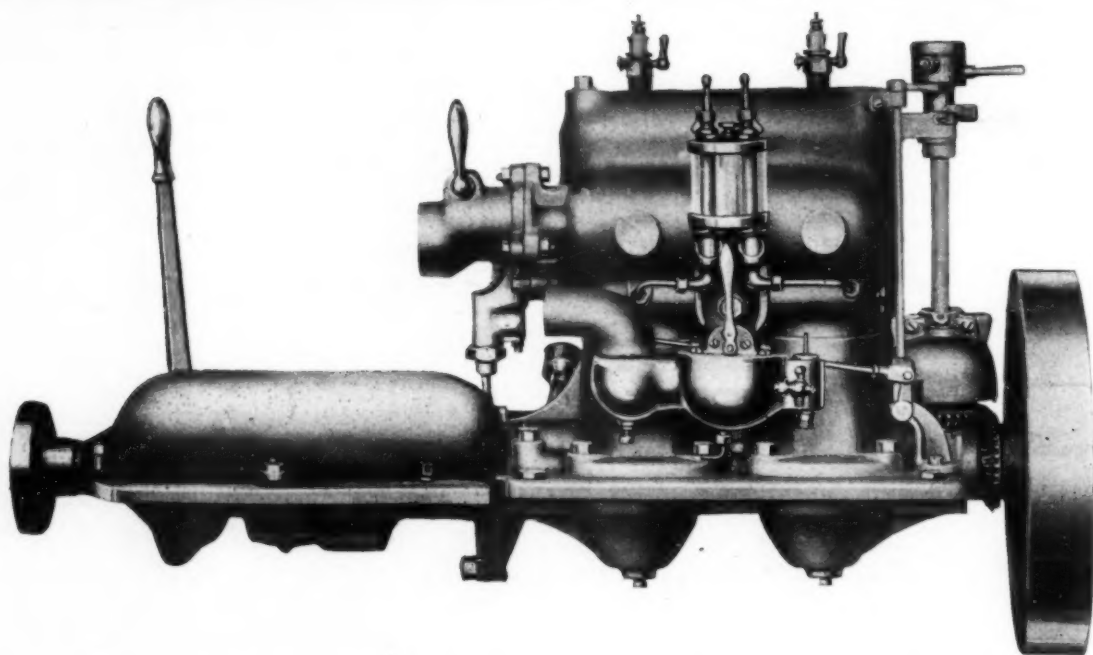
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TAUNTON, MASS.

FERRO

THE BEST BUY IN THE TWO-CYCLE FIELD



The 6 H.P. Ferro "Special" Unit Power Plant

Former price \$120.00, now reduced to \$84.00. Engine completely equipped with carburetor, muffler, priming can, shaft couplings, starting crank, can of oil, handy wrench and book of instructions.

Marine engine buyers have never had such an opportunity before. Ferro, the world's recognized standard two-cycle marine motor, in active use on practically all the waters of the globe, is offered at a new range of prices.

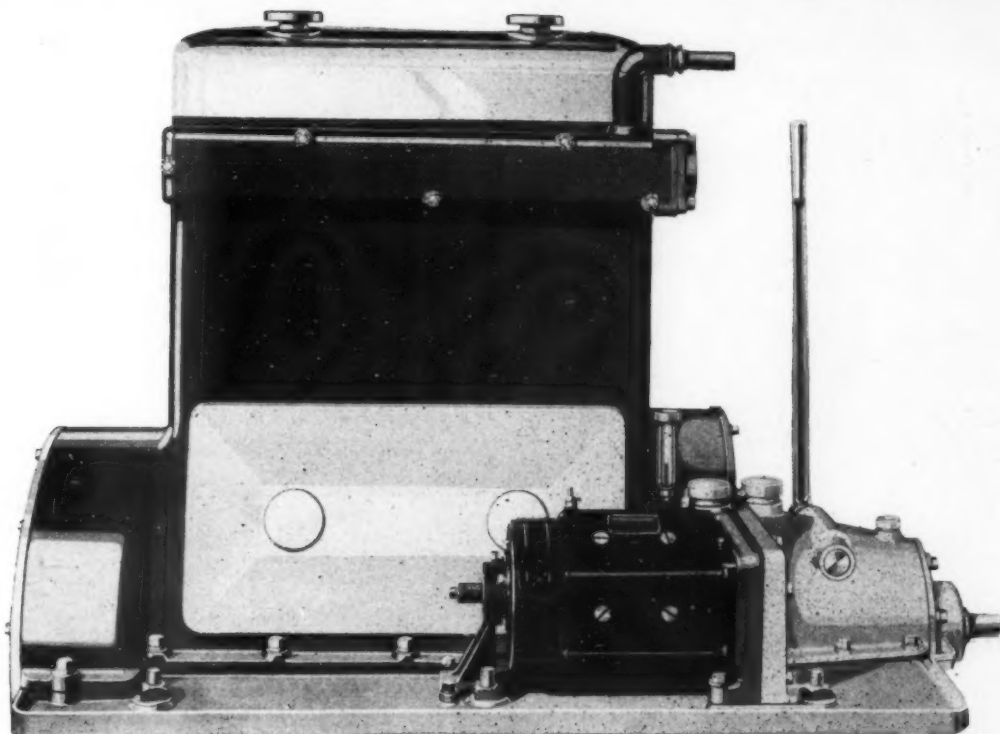
There's not a shaving of a hair in its sturdy, reliable quality—it is even better than ever, but immensely increased manufacturing facilities enable us to turn these motors out in big quantities at less cost—and you share the profit.

Write for folder that gives complete list of all sizes, with new prices. There is some mighty interesting news here for dealers, too—so be sure to tell us if you are one.

THE FERRO MACHINE & FOUNDRY CO.
210 Hubbard Ave. CLEVELAND, OHIO

FERRO

NEW FOUR CYCLE THE ALL-ENCLOSED ENGINE



Two Sizes---"Six" and "Four"

Each a complete unit Power Plant—motor, carburetion, ignition, reverse gear and electric starting and lighting.

Compact, clean lined, with working parts enclosed to their own protection and the owner's safety!

For the first time in a single marine engine the combined advantages of cylinders cast integral with crank case, detachable cylinder head, overhead valves without cages, removable cylinder sleeves and water cooled oiling system are found.

These features assure great strength and rigidity together with accessibility, increase in power because of less heat loss, better cooling of cylinder and valves, less carbon deposit, easier machining of combustion chambers, economical replacement of cylinder lining if accidentally scored and many other practical advantages.

Write for handsome descriptive folder. It explains very clearly what a remarkable achievement the New Ferro is.

THE FERRO MACHINE & FOUNDRY CO.
210 Hubbard Ave. CLEVELAND, OHIO

THE RECOGNIZED STANDARD OF THE WORLD

THREE POPULAR CLOSETS AND A FEW OF OUR FITTINGS AND SPECIALTIES FOR SMALL BOATS

THIS REMARKABLE CLOSET IS ESPECIALLY DESIGNED FOR USE IN SUBMARINES.



"KNOCKABOUT,"
PLATE S-34.
(Patented—Copyrighted.)
The "Knockabout" Improved Pump Water Closet. Vitro-Adamant round flushing rim bowl, 3 1/4-inch combined supply and waste pump; "Sands" Patent Automatic Safety Supply Foot Valve and "Sands" Patent Back-Water Check Valve. Pump rough, finished trimmings, oak seat and cover. **\$49.00**
add Mahogany seat and cover. **\$1.50**
Weight, net, 45 lbs.; gross, 75 lbs.



"WINNER," **PLATE S-2061.**
(Patented—Copyrighted.)
The "Winner" Pump Water Closet. Vitro-Adamant Round Hopper Bowl, oak seat, N. P. brass hinges, 2 1/2-inch supply and waste pump; "Sands" special quick opening supply valve. **\$19.00**
Plate S-2060. Fixture as described with oak seat **\$20.00**
Plate S-2061. Fixture as shown with oak seat and cover

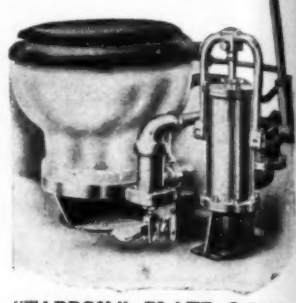
Immediate Shipment from Stock



PLATE S-2062.
The "Angle" Composition Hinged Sea Valve, with straight couplings and locking plate, for use on the supply and discharge of the "WINNER" closet and all S.M.A.L. pump closets. Price per pair with strainer for supply **\$6.00**



THE "BOW" CLOSET,
PLATE S-2050
(Design Patent Applied for.)
The "Bow" Closet. Vitro-Adamant Bowl, 2 1/4-inch pump, located at rear, fitted with wing handle. Quick opening supply valve. Space occupied, 15 x 24 inches. Pump rough, with finished trimmings, oak seat, N. P. **\$30.00**
Dimensions: Front to back, 23 inches; width, 14 inches; height, 12 inches. Net weight, 15 lbs. Shipping, 70 lbs.



"TARPON," **PLATE S-2026.**
(Patented—Copyrighted.)
THE "TARPON" EXTRA HEAVY REINFORCED PUMP WATER CLOSET. DESIGNED ESPECIALLY FOR SUBMARINES. Heavy Vitro-Adamant Oval Flushing Rim HOPPER BOWL, mounted on extra heavy "SANDS" non-corrosive metal waste arm standard. SPECIAL THREE (3) INCH COMPOSITION WASTE PUMP. "SANDS" Patent Automatic Safety Supply Foot Valve; "SANDS" Patent Back-Water Check and Discharge Valves. Metal parts smoothed, with N. P. trimmings, polished oak seat and cover. **\$135.00**
Will discharge against any pressure up to 75 pounds. Space occupied, 21 x 24 inches.

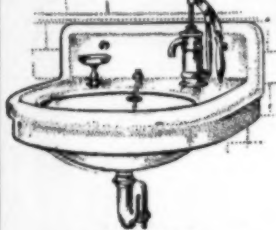
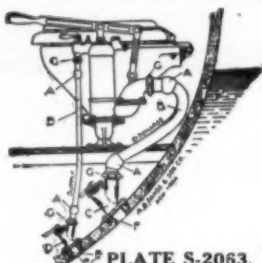
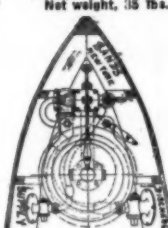


PLATE S-2068.
The "Madison" Vitro-Adamant Lavatory. N. P. double acting pump, N. P. brass full "S" trap, with waste pipe to deck. Price **\$35.00**
PLATE S-2070.
The "Majestic" Vitro-Adamant Lavatory, same as Plate S-2068, except with square front. Price **\$35.00**



Illustrates how "Winner" Closet can be installed below water line with "Sands" Angle Sea-Valves.
A—Lead Wiped Joints. B—Lead Supply and Discharge Pipes. C—"Angle" Discharge Sea-Valve. D—"Angle" Supply Sea-Valve. E—Brass Strainer for Supply. F—Lead Sleeves made of lead pipe, detachable. G—Coupling union nuts.



Suggestion for installation of the "Bow" closet in "eye" of small boats. With pair of our special sea-cocks.

Are you acquainted with "Sands" "Commercial" Closet for Work Boats?



PLATE S-948.
Polished Brass Look Cocks for Iron Pipe with loose key. 1/2 in. **\$3.00**
3/4 in. **4.75**
1 in. Nickel Plated, add **40.25**. Cannot be turned on without special key. Prevents theft of gasoline or oil.

PLATE 130% B.
Cast Bronze Round Raised Strainer, with self-cleaning perforations. Used on water supply for any and all purposes. Flange drilled for screws. 2 1/2 in. **\$0.35** 3 in. **\$1.00**
3 1/2 in. **1.50** 4 in. **2.25**
5 in. **3.00**

PLATE S-750.
Double Acting Brass Auto Bilge Pump, 15 inches long under spout and fitted with 5 feet of rubber hose. No. 1—1 1/2 in. diam. **\$3.50**
No. 2—1 1/2 in. diam. **4.50**
No. 3—1 1/2 in. diam., 24 in. long, with foot rest, **\$5.50**

PLATE S-3190.
The "Monard" 12" Vitro-Adamant Corner Lavatory with N. P. Brass Pump and waste fittings and N. P. Full "S" Trap. **\$24.50**

PLATE S-3180.
The "Monard" 14" Vitro-Adamant lavatory, one N. P. compression faucet, waste plug and brass trap, chain, stay and rubber stopper. **\$13.25**

PLATE S-771.
Brass Gasoline and Oil Pump with special valves. Dia. Lg. 1 1/2 in. **\$5.00**
1 3/4 in. **7.00**
2 in. **13.00**

PLATE S-709.
All Brass Galley Pump, 1 1/2 in. Cylinder, reversible handle with shut-off cock. Polished **\$8.50**
N. P. all over **10.50**

PLATE S-707.
All Brass, Basin, Galley or Bilge Pump, with 2" cylinder, mounted on hardwood plank, rosewood handle. N. P. ferrule and tip, can be used either right or left hand.

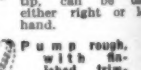


PLATE S-5200.
Neptune Motor Boat Bow Lantern Bracket, hinges permit bracket to lie flat on deck when not in use. Polished Brass **\$8.75**

PLATE S-1810.
Glass Deck Light with brass rim, no hinge. 2 1/2 in. **\$0.75**
3 in. **.90**
4 in. **1.50**

PLATE S-1810.
Glass Deck Light with brass rim, no hinge. 2 1/2 in. **\$0.75**
3 in. **.90**
4 in. **1.50**

PLATE S-5202.
Universal Polished Brass Rope Lead. Swing joint permits different angles of Pulley—prevents binding of rope. Polished Brass. **\$8.35**

PLATE S-5202.
Universal Polished Brass Rope Lead. Swing joint permits different angles of Pulley—prevents binding of rope. Polished Brass. **\$8.35**

Water tight and heavy pattern "SANDS" PORT LIGHTS and DECK PLATES "Sands Standard" 100% quality at special low prices

Size Opening	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	14"	15"	16"	17"	18"
S-1000	\$2.75	\$3.00	\$3.25	\$4.25	\$5.00	\$6.00	\$8.00	\$14.00								
S-1001	2.50	2.75	3.15	4.40	5.50	6.50	9.00									
S-1002		4.00	5.25	7.00	8.75	10.75	13.00	14.50	\$17.00	\$20.00	\$23.00	\$26.00	\$29.00	\$33.00	\$37.00	\$42.00
S-1003				8.45	10.40	12.60	15.10	16.75	19.50	22.75	26.00	29.30	32.60	36.90	41.25	46.50
S-4765		4.25	5.05	6.25	7.95	10.00	12.75	20.75	24.50	28.50						
S-4770		5.50	7.00	9.50	11.00	14.50	17.00	19.50	23.25	27.50						

STYLE S-4765 MADE IN SLEEVES 1" TO 4" LONG. ABOVE PRICES COVER SLEEVES UP TO 1 3/4" IN LENGTH; OTHER LENGTHS OF SLEEVES AT SLIGHT ADVANCE IN PRICE. ALL SIZES 8" AND UNDER HAVE ONE CLAMPING SCREW. ALL SIZES 9" AND LARGER HAVE TWO OR MORE CLAMPING SCREWS.

Full Line of ventilators, gasoline and bilge pumps, horns, whistles, strainers and outboard connections shown in New Catalog "R," free upon request

A. B. SANDS & SON COMPANY

Largest Manufacturers in the World MARINE PLUMBING SPECIALTIES 22-24 Vesey St., New York, U. S. A.
1849—"SIXTY-SIX YEARS OF QUALITY"—1915!

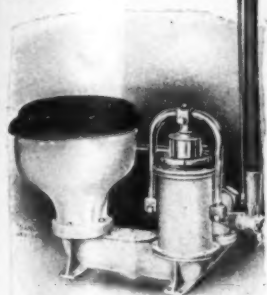
"SANDS" MARINE SANITARY FIXTURES

THEIR QUALITY,
THE WORLD
OF THESE HIGH
WHERE.

CONSTRU
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GRADE

CTION, EQUIPMENT AND OPERATION IS THE BEST IN
REMARKABLE SERVICE AND SUPERIOR APPOINTMENTS
FIXTURES APPEALS TO DISCRIMINATING PEOPLE EVERY.

THIS IS THE NEW "FRISCO"—A BRAND NEW FIRST QUALITY FIXTURE ESPECIALLY DESIGNED TO MEET THE DEMAND FOR A PUMP CLOSET FOR HEAVY DUTY AT A MEDIUM PRICE.



"HURON," PLATE S-2035.
(Patented—Copyrighted.)

The "Huron" Pump Water Closet has new style extra heavy Vitro-Adamant flushing rim hopper bowl. Five-inch combined supply and waste pump. Complete with mahogany seat and cover; pump white enameled, N. P. trimmings.

\$132.50



PLATE S-127.
The "Granby" Round Way Sea Cock for use on discharge pipe of closets and lavatories. This sea cock is similar to Plate S-126, except water way, which is full opening and clear round way.

"Sands" patent automatic safety supply foot valve controls the inlet of "Sands" Pump Closets.



SANDS
NEW YORK

THE "FRISCO," PLATE S-2046.
(Design Patented—Copyrighted.)

THE "FRISCO" PUMP WATER CLOSET, with special extra heavy Vitro-Adamant oval hopper bowl, extra large special rear outlet. Improved high-grade "Sands" non-corrosive composition, THREE (3) INCH combined supply and waste pump. "Sands" Special Composition waste arm with check valve. "Sands" Patent Automatic Safety Water Supply Foot Valve. "Sands" Patent Back-Water Discharge Valve. All metal parts smooth except the detachable metal handle with wood grip, which is nickel-plated.

Plate S-2045, as described, with oak seat only, no cover. \$59.00

Plate S-2046, as shown and described, with oak seat and cover. Used above or below the water line. Furnished with pump right or left-hand facing. Always sent with pump at left hand, as shown, unless otherwise specified. Dimensions: Width, 24 inches; front to back, 21 inches; height, 17½ inches. Weight: Approximate—Net, 80 lbs.; shipping, 150 lbs.



PLATE S-128.

Plate S-128. The "Helena" Composition Outdoor Connection, with flap valve and coupling, is generally used on discharge of closets, lavatories, sinks, or on exhaust of engines. Made with flanged or screwed outlet.

Screwed outlet, lead pipe connection, each \$2.75 3.75 \$5.00 \$7.00 \$10.00 \$15.00

Screwed outlet, iron pipe connection, each \$2.50 3.50 \$4.50 \$6.50 \$9.50 \$14.00

If flanged outlet wanted, specify Plate S-129. Price as above.

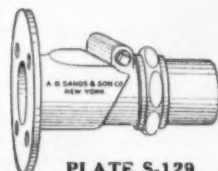


PLATE S-129.



"MOHAWK IMPROVED,"
PLATE S-2030.

(Patented—Copyrighted.) The "Improved Mohawk" Pump Water Closet, extra heavy Vitro-Adamant oval flushing rim hopper bowl. Composition supply and waste pump three (3) inch cylinder. Pump rough with polished trimmings, oak seat and cover.

\$70.00

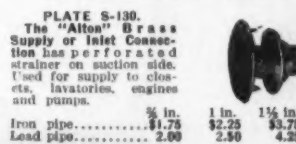


PLATE S-130.
The "Alton" Brass Supply or Inlet Connection has perforated strainer on suction side. Used for supply to closets, lavatories, engines and pumps.

Iron pipe..... 1 in. 1 1/2 in. 2 in.
Lead pipe..... \$1.75 \$2.25 \$3.75
2.00 2.50 4.25



"IOWA," PLATE S-2040.
(Patented—Copyrighted.)

The "Iowa" Pump Water Closet has latest style Vitro-Adamant extra heavy oval flushing rim, straight back hopper bowl. Fitted with four-inch supply and waste pump. Price with quartered oak, cabinet finish seat and cover; pump rough, with polished trimmings.

\$85.00



PLATE S-131.
The "Carlton" Brass Outlet Connection, with long nipple and flanged locknut, to make up on inside.

Iron pipe..... 1 in. 1 1/2 in. 2 in.
Lead pipe..... \$1.75 \$2.50 \$3.75
2.00 3.00 4.50



PLATE S-150.

The "Glenwood" Folding Lavatory, with Vitro-Adamant oval basin, N. P. copper lining, N. P. brass double-acting pump. N. P. brass trimmings.

Quartered oak, polished finish..... \$42.50

Mahogany, polished finish..... 44.00

PLATE S-152.

"Croton" Folding Lavatory, same as Plate S-150, except with faucet for pressure or gravity supply.

Oak Woodwork..... \$37.50

Mahogany Woodwork..... 39.00

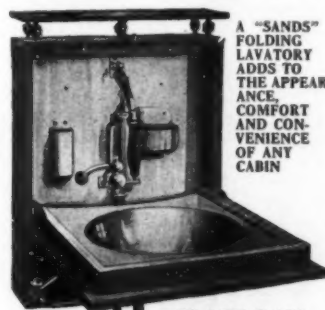


PLATE S-151.

The "Roslyn" Folding Lavatory, with tumbler rack; N. P. copper lining; N. P. copper combined round basin and slab; N. P. copper soap and brush holders; N. P. brass double-acting pump with combination brass swing supply faucet.

Made in Two Sizes No. 1 No. 2

Quartered oak, polished finish..... \$37.50 \$42.50

Mahogany, polished finish..... 39.00 44.50

Height..... 10 1/2 in. 22 in.

Width..... 15 in. 22 in.

Depth open..... 16 in. 19 in.

Diameter of basin..... 10 in. 12 in.



PLATE S-145.

The "Hobson" Vitro-Adamant Folding Lavatory, N. P. brass combination self-closing faucet for hot and cold water. N. P. brass waste coupling and towel rack.

Complete..... \$45.00

Weight, net, 45 lbs.; gross, 75 lbs.

Dimensions: Height over all, 26 1/2 in.; width, 16 1/2 in.; depth open, 17 in.; depth closed, 7 in.



PLATE S-186.

The "Arco" Folding Lavatory, N. P. copper basin and slab, N. P. composition single-acting pump, N. P. copper lining; oak woodwork..... \$25.00

Height over all, 19 1/2 inches; width, 15 inches; depth closed, 5 1/2 inches; depth open, 16 1/2 inches; basin, 10 inches.

PLATE S-187.

"Arco" Folding Lavatory; same as Plate S-186, except with faucet for pressure or gravity supply.

Oak woodwork..... \$22.50

Imitation mahogany..... 25.00

Complete line of closets, lavatories, port lights, bath tubs, basins, showers, sinks and deck plates described in New Catalogue "R", free upon request

A. B. SANDS & SON COMPANY

Largest Manufacturers in the World **MARINE PLUMBING SPECIALTIES** 22-24 Vesey St., New York, U. S. A.

1849--"SIXTY-SIX YEARS OF QUALITY"--1915

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.

An eagle with its wings spread wide, perched atop a detailed motor engine. The eagle's head is turned slightly to the left, and its talons are firmly gripping the top of the engine. The engine is a complex mechanical device with various components like pistons, valves, and a flywheel. The entire scene is framed by a decorative border that looks like stylized waves or a rope.

The
Mighty

EAGLE

Always Offering Something New
Always In Advance In New Features
Always Giving More Value For Your Money

Instead of demoralizing the Agents' business by offering EAGLE Engines at cut prices, we strive to assist them by offering each year Engines with new and practical improvements. In 1914 we perfected and offered our Agents the most complete and best designed line of high speed

Engines that has so far been produced, and the sales demonstrated that EAGLE Agents had the best selling line of Engines on the market. The Model "2-0" high speed Engine has the World's record for speed and efficiency, having during the short racing season along the Atlantic Coast captured 19 prizes, including the Coast Championship, held under the auspices of the Cape May Yacht Club, at Cape May, N. J., August 15, 1914, covering their six miles (official course) in 12 minutes and 17 seconds. The Model "2-0" EAGLE Engine is rated at 12 H. P. at 800 R.P.M., and is sold at this rating. In the Championship Race referred to, it was running at 1350 R.P.M., turning a 3 blade 14" x 24" Hyde propeller, and was installed in the "Apel" FLYING EAGLE" boat, 16' in length, with a total weight of 1150 lbs. There is no similar record in existence, when you consider the bore and stroke of the Motor, its weight and price. The fact that the EAGLE line of high speed Engines costs you no more than those inferior in every way, is our reason for this effort to drive these facts home.

New 1915 Medium Speed "EAGLE"

(See 1915 Catalog)

Our line of two-cycle Engines is not confined to one particular type. Our fifteen years of contact with the marine industry enables us to offer an Engine for every purpose. A high-speed Engine is not successful for use in boats used for commercial and fishing purposes. We have a large business interest among the fishermen in all parts of the world, and we have improved the two-cycle Engine for their use in the heavier Models in the same degree as we excel in the high-speed types. While we guarantee to produce more Horse Power for the given stroke and bore of each Engine, we have not increased the price. We do not ask the Agent or Consumer to pay for improvements that we develop. Investigate our line and, further, please realize that they are all sold at attractive prices. The extraordinary Dollar for Dollar value that we offer is only possible through a mighty organization equipped mechanically and financially as no other maker of two-cycle Engines in this country. Careful buying creates a successful and prosperous business, and here's trusting that 1915 will be charitable to you.

Our 1915 catalog with full detailed information of our complete line of high speed, medium duty and heavy duty Engines will be cheerfully mailed to any one upon request.



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Torrington, Conn., U. S. A.

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THE JOHNSON MARINE REVERSE GEAR

Embodies the A. B. C. of High Grade Reverse Gear Construction

A for ALLOY STEEL: $3\frac{1}{2}\%$ NICKEL STEEL used in all GEARS and SHAFTING, properly hardened and heat treated.

B for BALL BEARINGS: DOUBLE ROW BALL BEARINGS of an approved type on the main drive shafts in each end of the case, the propeller end one being a DOUBLE THRUST BEARING.

C for CLUTCHES:

THE JOHNSON FRICTION CLUTCH

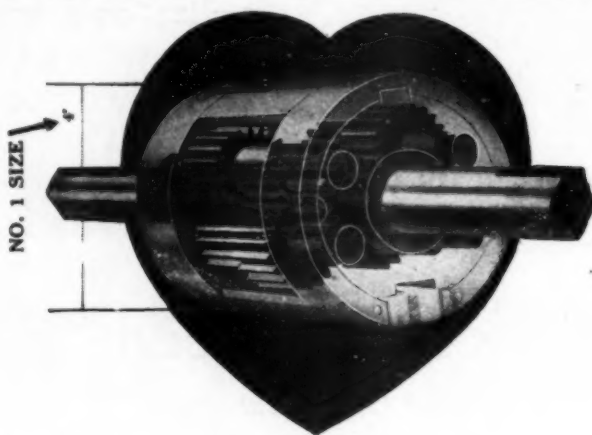
in a DOUBLE TYPE is THE HEART of THE NEW JOHNSON ALLOY STEEL REVERSE GEAR.

Investigate these features, new to REVERSE GEAR construction, which we have successfully applied and used, and then use your own judgment in selecting the Gear for your own boat for the coming season.

This is the interior of the Alloy Steel Gear that you have seen Advertised in Motor Boating for the past six months.



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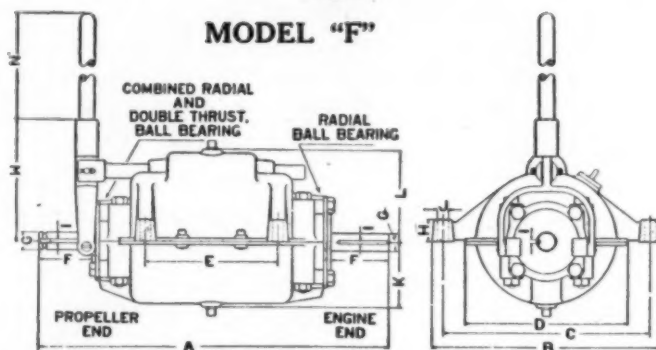


NO. 1 SIZE



Compare carefully its construction with any other make on the market before placing your order.

Exterior



MODEL "F"

Gear No.	H.P. Per 100 R.P.M. Max.	H.P. for High Speed Motors Max.	H.P. for Medium Speed Motors Max.	WEIGHT		List Price for Cast Iron Case	List Price for Aluminum Case	DIMENSIONS IN INCHES													
				Cast Iron Case	Aluminum Case			A	B	C	D	E	F	G	H	I	J	K	L	M	N
0	¾	5	3	23	19	\$24.00	\$36.00	12⅜	7½	7	5½	4½	2	⅝	¾	⅛	⅜	2¼	3¼	4½	7½
*1	1	10	5	40	32	36.00	48.00	16⅜	9½	8½	6¾	4½	3¾	¾	1	¼	2¼	4½	5½	13½	
2	3	30	15	93	75	48.00	80.00	21⅜	11½	9½	8½	6½	4½	1½	1½	¼	3¼	5½	6½	15½	

*Delivery date on request on this new size.

A Comprehensive Test just made of the three sizes of Gears listed above, by one of the large Marine Motor Manufacturers gave the following results. For brevity sake we have only shown part of this test, but it will outline to you, Mr. Purchaser, that Johnson Gears are Manufactured with a factor of safety equal to double their rated capacity, and more. We do not guarantee our gears, however, for more than their rated horse-power, as listed above

Gear No.	Clutch Carried Without Slipping	Clutch Slipped	Carried on Reverse		R. P. M.		H. P. Delivered	
	Forward	Forward	Without Failure	Failed	Motor	Dyn.	At Actual Speed	Per 100 R. P. M.
No. 0.....	65 lbs.	77.50 lbs.			805	895	11.10	1.24
No. 1.....	140 lbs.				890	885	13.00	1.47
No. 2.....	316 lbs.				880	880	23.5	2.67
					850	850	50.97	6.00

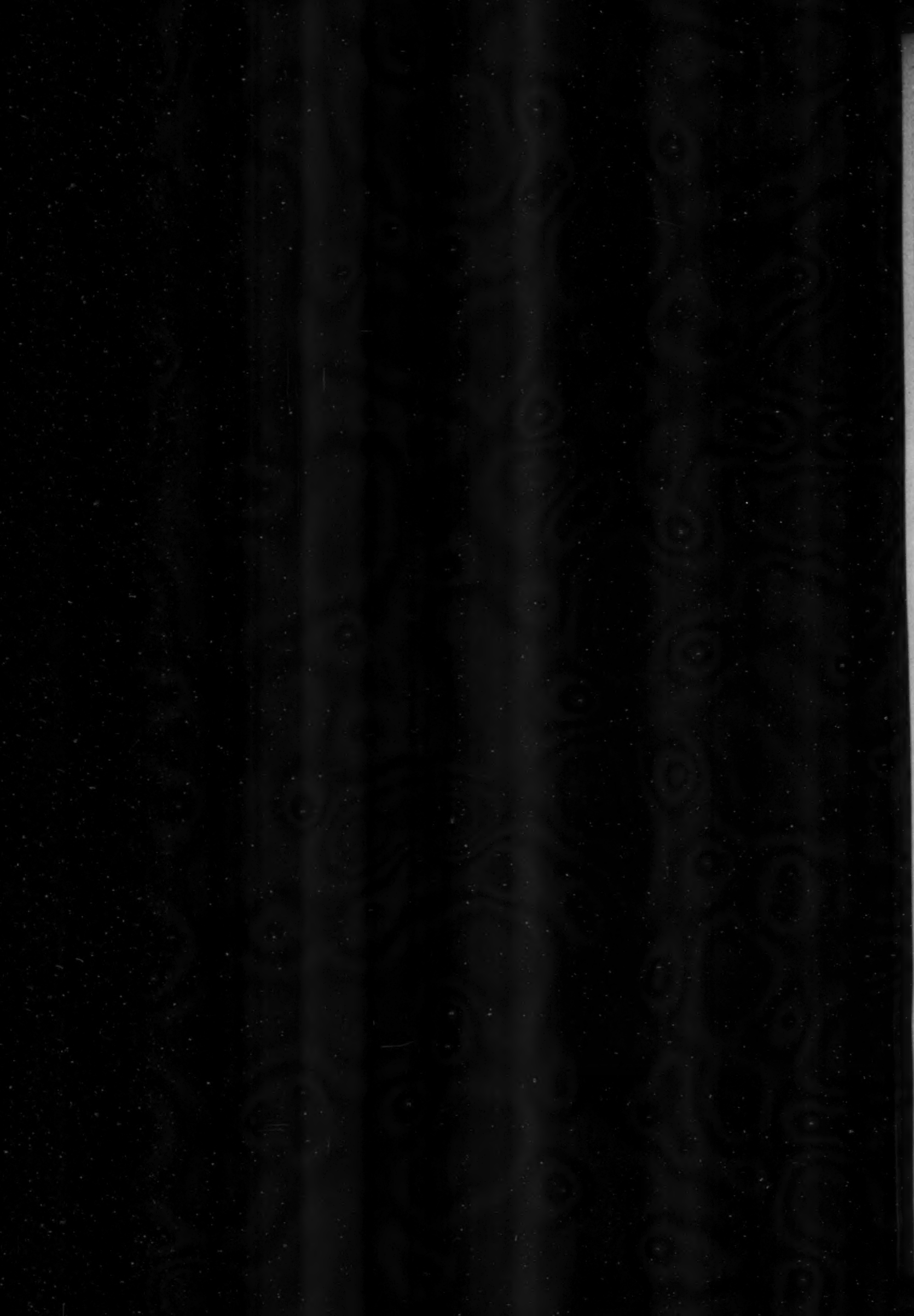


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See our Exhibit at the New York and Chicago Motor Boat Shows.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

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Speedway



1915 "SPEEDWAY" RUNABOUT
32 Foot Long. 5'9" Beam.

"Speedway" 1915 Show Exhibit—as Usual, Unusual.

THREE new boats and five new engines distinguish the "*Speedway*" exhibit at this year's Motor Boat Show. A new 32 foot "*Speedway*" Runabout, admirably sea-worthy and speedy. A new 50 foot "Accommodation Runabout" of special design.

And the Surprise of the Motor Boat Show

—a new 25-foot "*Speedway*" Runabout doing 18 miles per hour, at \$1500. This popularly priced "*Speedway*" now brings the desirability of "*Speedway*" ownership within the means of every motor boat enthusiast. We have christened it the "**SPEEDABOUT**" in acknowledgment of its speediness, power and wonderful utility and because it is a true "*Speedway*" through and through.

**Gas Engine and Power Company and
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The "SPEEDABOUT"
25 Foot Long. 18 Miles Per Hour.



WE will exhibit our full line of 1915 Motors at the New York Motor Boat Show, Section H. Don't fail to pay us a visit and see this wonderful Motor. The only successful two-cycle Motor with no crank case compression.

PENROSE MOTOR, INC.

1319 Pennsylvania Bldg.

Philadelphia, Pa.

If you cannot visit this Show, write at once for 1915 catalog and full descriptive matter



The
POWER
of
VALUE.

**STANDARD
12 H.P.**

4-Cycle, 4-Cylinder
\$180 to \$260



The
POWER
of
SERVICE

**VANADIUM
20 H.P.**

4-Cycle, 4-Cylinder
\$280 to \$360

The Power of Kermath Value, the Power of "Engine Service" and the Power of "Customer Service" Leads Us to a Confession

We confess that our factory has done more than any other in the world toward the development of small 4-cycle, 4-cylinder motors.

We confess that the superiority of this type of engines has been recognized by 2-cycle engine builders—therefore,

We confess that the demand for Kermath engines has driven many of these builders to produce 4-cycle engines.

We confess that these builders have a great deal to learn and must have several years' experience before they can produce engines as good as a Kermath.

We confess that by that time they will be several years behind us in the production of this type of an engine.

We confess that the great sale on Kermath Motors has been due to the great value represented in them.

We confess that there is not an engine on the market costing twice our price that is our Superior.

We confess that from the first sales of Kermath engines the future sales came from the wonderful service our engines gave.

We confess that when our customers required some small part or advice from our factory, their needs were given prompt and efficient attention, and

We confess that this made our customers happy and satisfied.

We confess that Kermath engines are improved every year, and when better engines are built

"Kermath will build them."

We confess that when greater value or higher quality can be given.

"Kermath will give them."

Kermath Mfg. Co., Dept. 2, Detroit, Mich., U. S. A.



YEARS IN ADVANCE—DEMONSTRATED

Enclosed Valves: Dust-proof—muffles valve noise—adds to simplicity and symmetry of design.

Crank Case: Manganese bronze—stronger than iron, total weight but a trifle more than aluminum.

Pressure Feed Circulating System of Lubrication: The only scientific and proven method for high-speed engines.

Solid Forged, Integral Cam Shafts: True to a fraction of a thousandth of an inch, introducing the first requirement of a noiseless engine into high-powered marine motors. No loose cams or defective timing.

Oil Ducts Cored in Crank Case: Eliminating any possibility of failure of the oiling system.

Enclosed Reverse Gear: Oil-tight and dirt-proof, lubricated under pressure same as bearings and crank-pins; a new and exclusive feature in gasoline engine design.

Ignition: Bosch two-spark, water-proof magnetos.

Exhaust Manifold: Copper; non-corrosive and unbreakable.

Reverse Gear Bearing: Combined radial and ball thrust bearing.

Valves: Tungsten steel; inlet and exhaust interchangeable.

Studs and Bolts: Chrome nickel steel wherever subject to severe working strains.

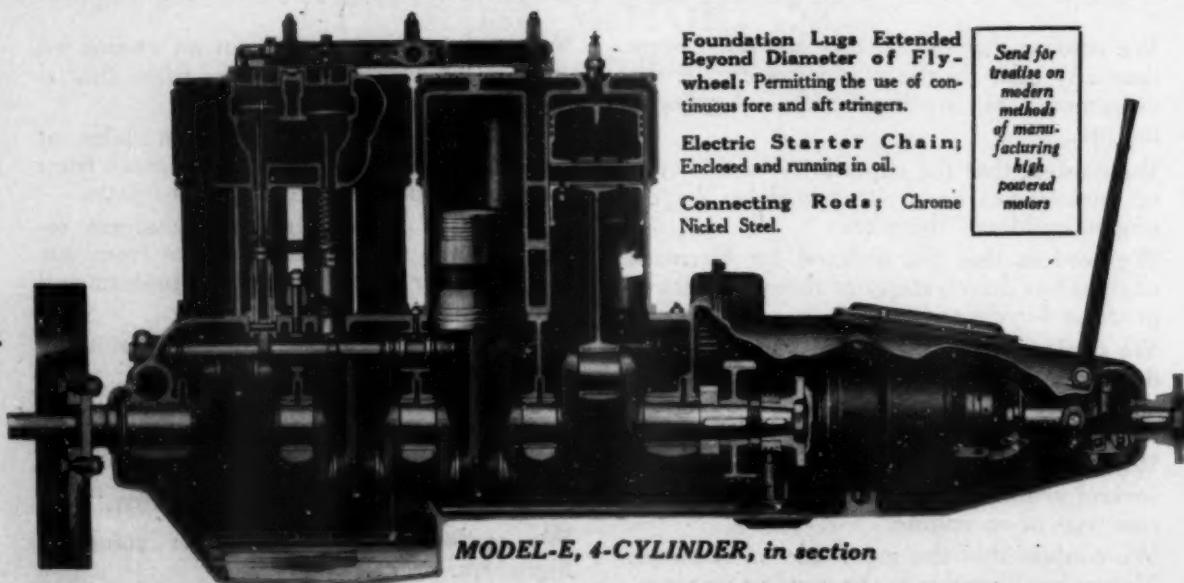
Interchangeability: Guaranteed to be equal to the best in automobile practice; not a taper pin used throughout the motor.

Oil-Tight and Clean: The whole motor absolutely proof against oil leaks.

Camshaft Gears: Nickel steel drop forgings.

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No. of Cyls.	Rated H.P.	Rated R.P.M.	Net Prices.	No. of Cyls.	Rated H.P.	Rated R.P.M.	Net Prices.	No. of Cyls.	Rated H.P.	Rated R.P.M.	Net Prices.
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Cylinder dimensions of all models are 5½ in. bore by 6 in. stroke.



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Foundation Lugs Extended Beyond Diameter of Fly-wheel: Permitting the use of continuous fore and aft stringers.

Electric Starter Chain; Enclosed and running in oil.

Connecting Rods; Chrome Nickel Steel.

Send for treatise on modern methods of manufacturing high powered motors

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Supreme Auto Oil

Light Medium Heavy
High Viscosity Low Cold Test

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Burns cleanly—leaving a minimum carbon deposit

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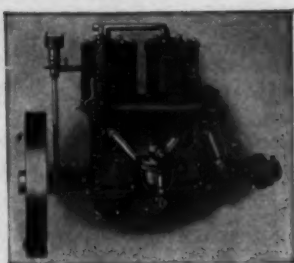
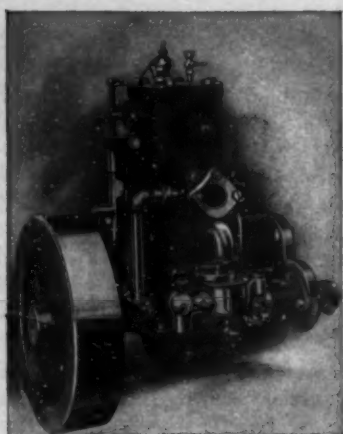
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Equipped with Bridgeport Vapor Rectifier,
Patent No. 1,085,844 Flexible, Reliable,
Absolutely Non-Backfiring

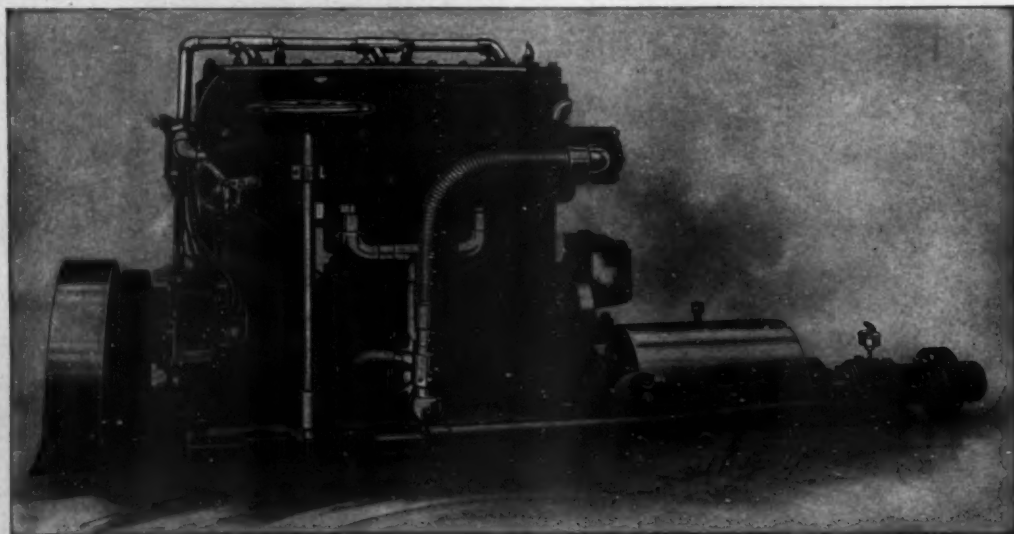


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These 1915 models represent the last word in motor refinement

THE BRIDGEPORT FOUR CYCLE MOTOR

Space will not permit a description that will do justice to this model. A glance at the cut reveals a motor of most modern design and practicability. All working parts, except pistons and connecting rods, are outside but completely covered, giving the right sort of accessibility and repair economy. This new model is built in three sizes only, 2, 3 and 4 cylinders, 7½ in. x 9 in., rated 24, 36 and 48 H.P.



Send for catalog of our complete line of two and four cycle motors

THE BRIDGEPORT MOTOR CO., Inc.
106 Kossuth Street, Bridgeport, Conn.

WINTON

If in the selection of a power plant your decision is based on merit alone, the engine of your choice will be a WINTON.

This statement expresses the sentiments of experienced people, who have investigated the WINTON ENGINE and have been strongly impressed by its many super-qualities.

In the past years, if an engine excelled in the perfection of a single feature of design or construction, that engine was distinguished above all others, even if lacking in many respects.

It was believed that every marine internal combustion engine had objectionable features that could not be eliminated.

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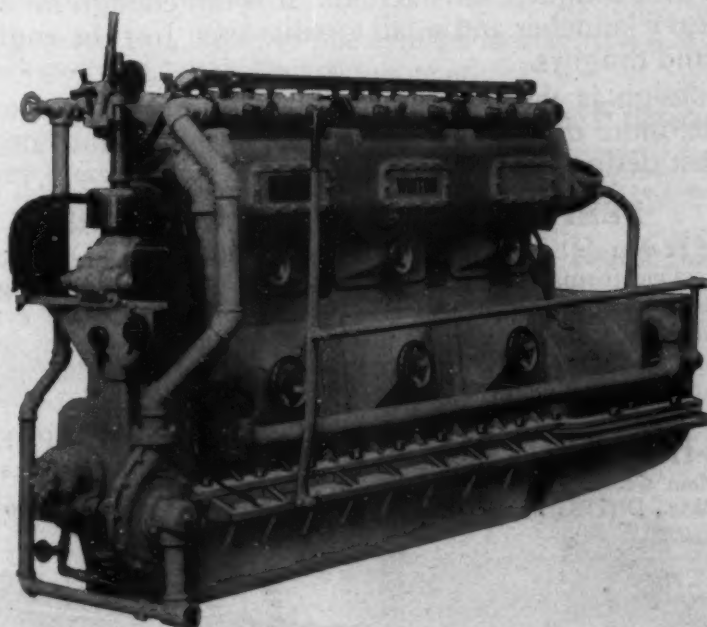
The WINTON ENGINE is built for no one class of service, but is adaptable to any. Whether supplying the motive power for commercial craft or yachts, the mechanical excellence that is built in guarantees its owner complete and lasting satisfaction.

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& MFG. CO.**
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SHOW—MADISON SQUARE
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Jan. 30th to Feb. '6th

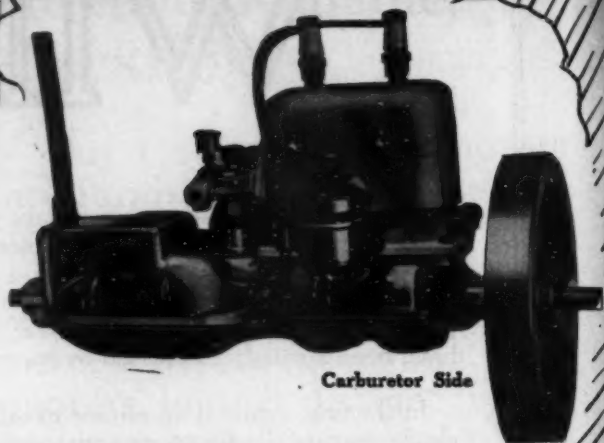


**If
merit
decides**

GO ANYWHERE WITH A HOLMES-HOWARD MOTOR

AND FEEL SAFE

Get acquainted with the handsome Holmes-Howard before you buy any marine motor of this size. It is unquestionably the leader of its class in the light-weight, medium-duty power field.



Carburetor Side

6 to 8 H. P. Weight 125 Pounds Complete

An abundance of power, plenty of speed and a quality of dogged persistence that outlasts many bigger and more expensive motors—all confined in a perfect little mechanism weighing less than the average man. The reverse gear is built right into the motor, an integral part of it. The whole unit is simply a combination of willingness, convenience, ability and service.

Suitable for Boats up to 25 Ft.

There is scarcely any type of boat under 25 feet that the Holmes-Howard won't drive with complete satisfaction. It is fast enough for speed boats and strong enough for heavy launches and small auxiliaries. Just the engine for canoes, runabouts, tenders and dinghys.

The design is the latest perfected two-cycle, three-port type. It couldn't be more simple, more durable or lighter for its power and speed. We are satisfied that it is the best design possible for a motor of its size and purpose.

PERFECTLY BUILT — HANDSOMELY FINISHED

You'll have reason to be proud if you have a Holmes-Howard Motor in your boat. Proud not only for its perfect performance, but for its high class finish and pleasing appearance. It is small, compact and clean-cut. Flywheel and all brass work nickel-plated, cylinder enameled French gray, and every line and curve graceful and well proportioned. Bearings extra large. Lubrication automatic. Aluminum crank case extended to completely house the "Joe's" reverse gear. Bosch High Tension Magneto and waterproof shock-proof plugs.

The Holmes-Howard Motor Co.

Main Office:
36 Rowland Bldg., DETROIT, MICH.

\$160.00

COMPLETE, including all equipment, propeller shaft, stuffing box and propeller.

Write for prices on 4 and 6 cylinder motors. [Special Proposition for Agents.]



Magneto Side



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Marine Engines

4 CYCLE Portable Boat-Drive. **2 CYCLE**

Good Engines for Fifteen Years

Strelinger Engines are backed by fifteen years of honest service and satisfaction. Where others must point out unimportant mechanical differences as the basis of their claims for attention, the Strelinger can point to a record that settles all questions in regard to its ability to make good. It has made good, year after year, in all kinds of boats, and under all conditions of service.

"Strelinger" Four Cycle Heavy Duty Engines

The four cycle Strelinger Engines are the ones on which the Strelinger record and reputation has been established. Built for heavy service, they present the best there is to be had in efficiency, simplicity, economy and durability.

There are approximately 40% fewer parts than in any other engine of this type. This means small repair bills, freedom from trouble, low cost of maintenance and simplicity for the owner who tends his own engine. There is weight enough to insure durability in the hardest work.

Strelinger Four Cycle Engines are built in one, two, three and four cylinder models, from 6 to 40 H.P. All models furnished with Make and Break or Jump Spark Ignition.

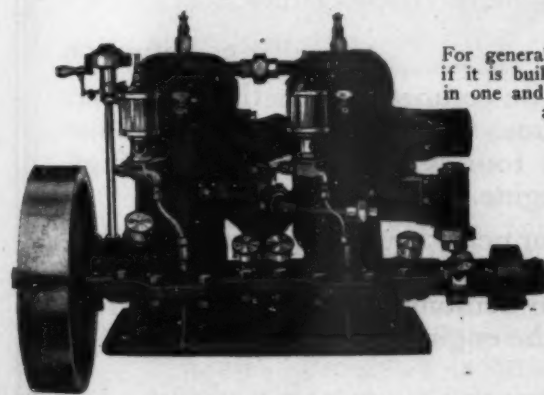
"Little Giant" Two Cycle Engines

For general utility in ordinary kinds of service there is nothing better than a two-cycle engine, if it is built the Strelinger way. Our "Little Giant" Two-Cycle General Utility Engines are built in one and two-cylinder models having 1½ to 20 H.P. They are strongly built, conservatively rated and have ample capacity to do their work with complete satisfaction.

"Strelinger" Portable Boat Drive

A portable, detachable row-boat motor that is different—and better than any other outboard motor on the market. There are many exclusive advantages. No gears, flexible shaft or other complications. The simplest, most practical and most satisfactory motor of its kind ever produced.

The propeller can be raised or lowered, or adjusted to any angle for different boats. Lift it to the surface when running through weeds, over rocks or in shallow places. Raise it out of the water without



stopping the motor while making a landing, or raise the propeller when you want to beach the boat high and dry.

The Strelinger Portable Boat-Drive is fully guaranteed for five years. The motor is one of our standard models which we have built for 12 years. There is nothing experimental about any part of the outfit. Supplied in 2 H.P. and 5 H.P. Magneto or battery ignition. Weight 70 lbs. Carried in three parts, easily assembled or taken apart.

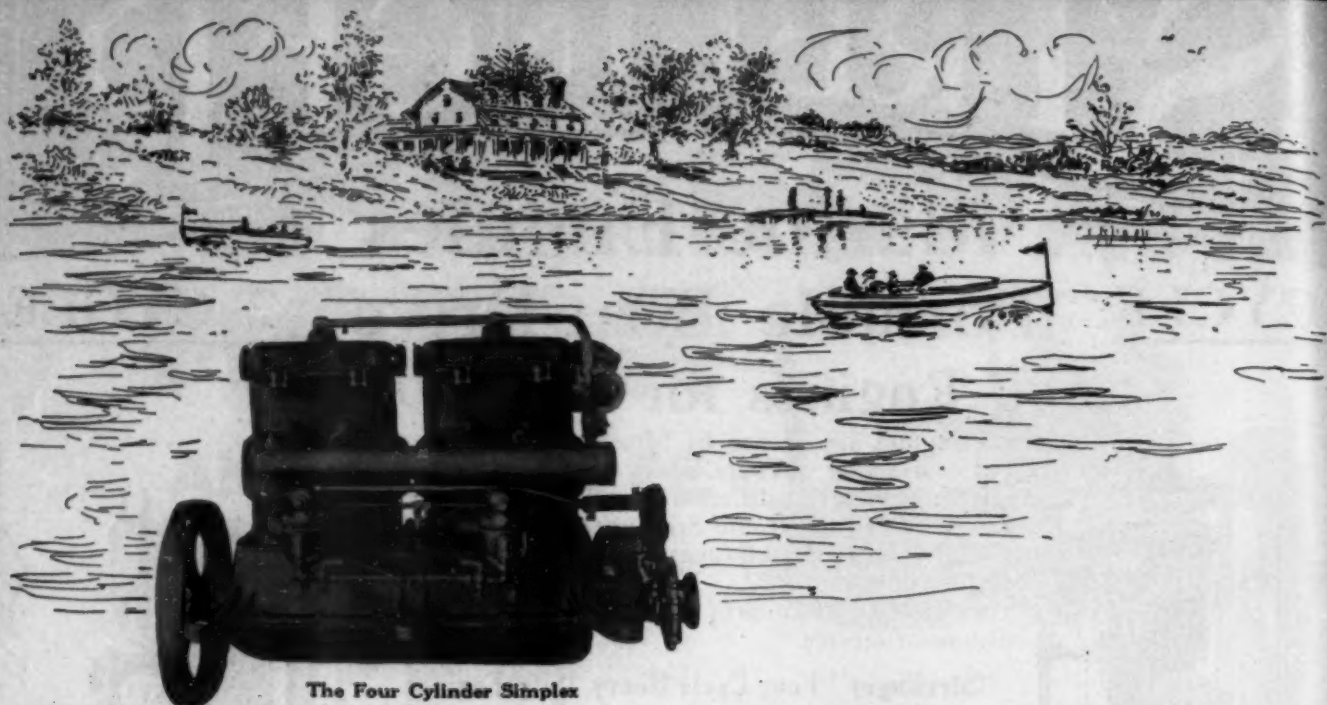


Write to-day for the complete Strelinger Catalog and prices

You'll be glad when you know more about Strelinger Engines

RELIABLE DEALERS WANTED

STRELINGER MARINE ENGINE COMPANY
20 ST AUBIN STREET DETROIT, MICHIGAN



The Four Cylinder Simplex

Something New Something Different Something Better

A Perfected Two-Cycle Engine, With No Crank Case Compression

The new Simplex Engine is the latest and highest development of the two-cycle type. In actual tests it has excelled in perfection of operation the best results of any other marine engine ever built, whether of two or four-cycle type. And the extreme simplicity of its design means not only greater reliability and satisfaction, but enables us to produce it at a price never before equaled in an engine of equal quality.

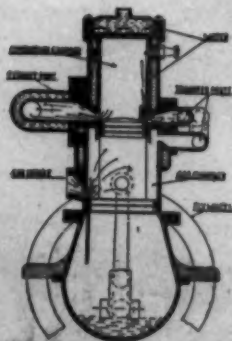
Simple to Build

Easy to Operate

Free from Vibration

The Simplex design eliminates all troubles of crank case compression as the gas enters the cylinders direct. There are no valves, gears or cams. The two-cylinder model has three large main bearings on the crank shaft, and the four-cylinder has five bearings. The most strenuous service is not too severe for this engine.

The Simplex has made non-stop runs under full load for periods varying from 10 to 100 hours, and is not affected in any way after hours of hard pulling. Operates on gasoline, kerosene or alcohol with any ordinary carburetor. To demonstrate the freedom from vibration, a lead pencil can be stood on end on top of the engine while running with full load at 1050 R.P.M.



Patented in U. S. A., Canada
and Europe.

2-Cylinder, $3\frac{1}{2} \times 4\frac{1}{2}$, Rated 10 H.P. at 900 R.P.M., \$130

4-Cylinder, $3\frac{1}{2} \times 4\frac{1}{2}$, Rated 20 H.P. at 900 R.P.M., \$250

Write today for full details of this wonderful new engine

Simplex Engine Co.

Sales Dept., 306 Ford Bldg., Detroit, Mich.

Three Starters---

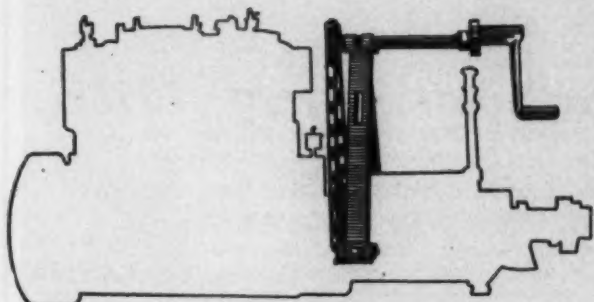
take your choice



No. 1

The Strongarm

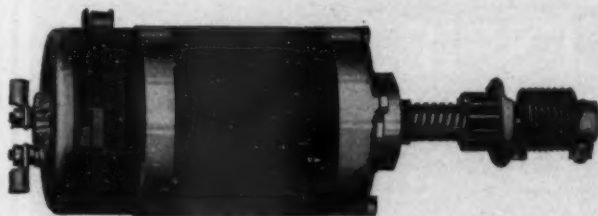
All right mechanically—well designed. Rarely gets out of order—*but often gets tired.* All right for row-boat motors. Formerly used for cranking small marine engines.



No. 2

The Chainhoist

A great time-slayer. Used on dredges in combination with the "Strongarm." Neat in appearance and never in the way unless installed in the boat.



No. 3

The LEECE-NEVILLE Electric Starter

You used starter No. 1 because you could get nothing better.

No. 2 made cranking a little easier but it was a makeshift at best.

Now comes the *electric cranker*—which operates by pressing a button, occupies little space, is sure and positive in action, gives you not a "once-over" but an over-and-over until your engine picks up and runs.

The Leece-Neville starter has had its actual-service test.

Its record has established it as an indispensable part of a boat's power equipment.

The designs of more than twenty of the leading boat and engine builders now provide for installing "Leece-Neville" systems.

Electric Lighting is usually included in the installation.

Specify "LEECE-NEVILLE" on your new engine

Write us for full information.

THE LEECE-NEVILLE COMPANY

1051 Power Avenue

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Its superb finish is unaffected by heat, cold, weather or atmosphere. Will not blister or crack. This varnish looks fresh and clear long after all others have begun to show the effects of the elements.

Monarch Spar Varnish withstands the test of actual service and has attained its wide use on that basis alone. Appearance and durability after long continued exposure are the only true tests. Any spar varnish that dries quickly and does not turn white under water cannot possess the required durability for outside marine use.

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The only product which satisfactorily removes old lead, zinc, paint, enamel and shellac. Acts almost instantaneously on ordinary work. Does not evaporate readily and cannot burn the hands. More than pays for itself in time saved, to say nothing of the superior results from its use.

Our Treatise on Refinishing Yachts and Motor Boats contains many valuable hints which every boatman will appreciate. Gladly sent gratis anywhere upon request.

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PEERLESS

"The Engine That Makes Good"

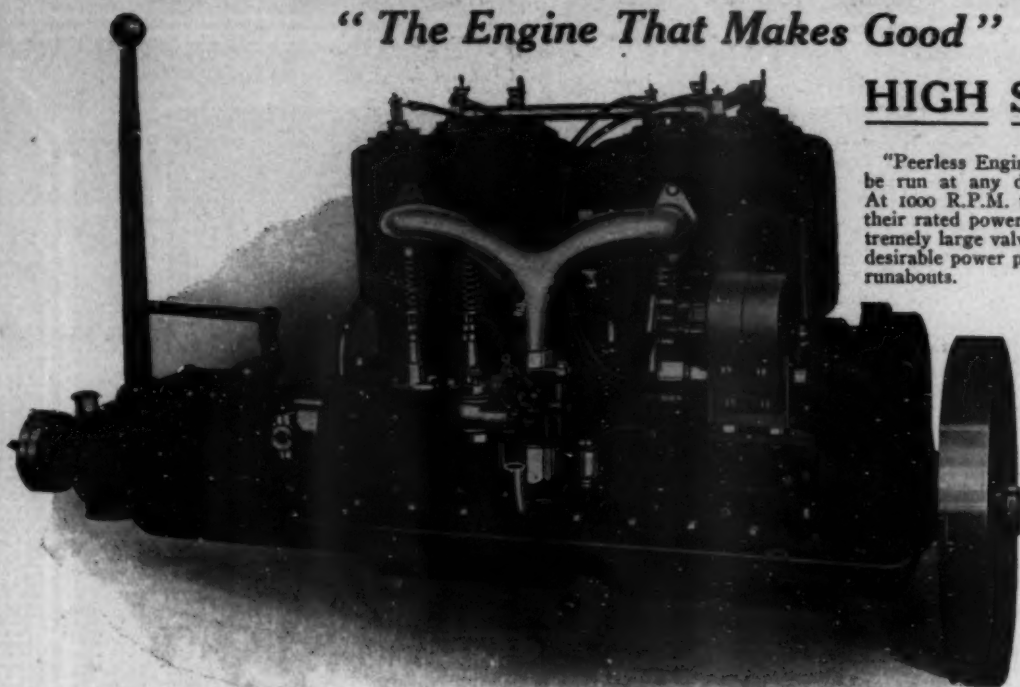
HIGH SPEED

"Peerless Engines" are so designed that they can be run at any desired speed up to 1200 R.P.M. At 1000 R.P.M. they will develop 25% more than their rated power. The "T" head design, with extremely large valves, makes the "Peerless" the most desirable power plant for either speed boats or fast runabouts.

**MEDIUM
DUTY**

Any of the Peerless Engines make an ideal power plant for medium duty service, they have the necessary bore and stroke to develop their rated power at a speed suitable for cruiser work. They are also very quiet and smooth in operation, flexible in speed control and economical in fuel consumption.

All engine equipment is included in the Peerless prices—Kingston Dual magneto, Model "L" Schebler carburetor, Detroit force feed oiler, spark plugs, priming cups, all necessary wiring, etc.—in fact the engine is complete in every respect and ready to run.



Port Side (1915 Model)
4-Cylinder "Peerless"

PRICES, FOUR-CYLINDER ENGINES

16-20 H.P.	Bore 4", Stroke 6", complete with gear—\$360
25-35 H.P.	" 5", " 6", " " " —\$450
40-50 H.P. (Medium Duty)	" 5 1/2", " 7", " " " —\$600

WHAT PEERLESS USERS SAY:

Tufts College, Mass., September 21, 1914.
PEERLESS MARINE MOTOR CO.,
Buffalo, N. Y.

Gentlemen:

Enclosed you will find a small photograph of my 22' motor boat, in which there is installed one of your 16-20 H. P. Peerless engines.

The engine had been installed only two days when I started from New Bedford to Boston around Cape Cod, the canal not having been open at that time. I reached Boston safely and about a week later continued the trip to the Maine coast beyond Portland, reaching the latter destination after a rather rough trip, but safe and sound.

Since July 1st I have run the boat about 1200 miles and have had no engine trouble whatever. The boat has proved to be a beautiful, running boat and the engine a model of steadiness, reliability and power.

I shall be very glad to recommend your engine to anyone who may inquire about it.

Yours very truly,

EDWARD H. ROCKWELL.

Tufts College, P. O., Massachusetts.

Hamilton, Ont., December 7, 1914.
PEERLESS MARINE MOTOR CO.,
Buffalo, N. Y.

Gentlemen:

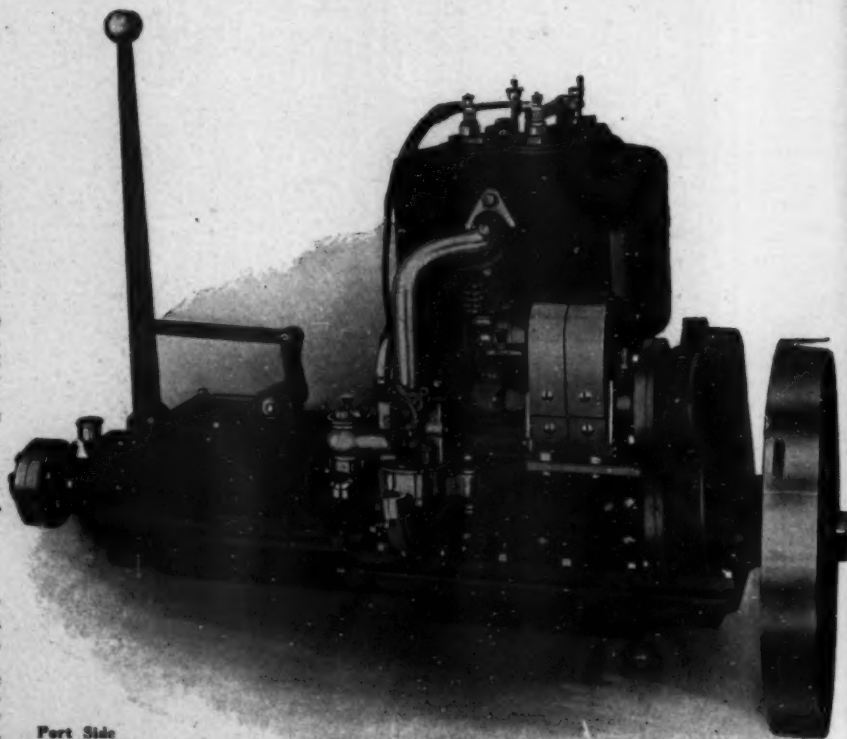
I am enclosing herewith a photograph of my boat, "Rob Rob." This boat is 45' long with a beam of 8' 6", and is equipped with a four-cylinder, 25-35 H. P. Peerless engine.

I wish to say that this engine has given entire satisfaction in every respect. The motor was installed the last week in July, and we immediately started upon a three weeks' cruise to the Thousand Islands and return. The motor did not give any trouble throughout this trip and for the balance of the season.

I consider the Peerless engine one of the most reliable marine engines on the market today.

Respectfully yours,

J. H. FERNSIDE.



Port Side
(1915 Model)
2-Cylinder
"Peerless"

PRICES, TWO-CYLINDER ENGINES

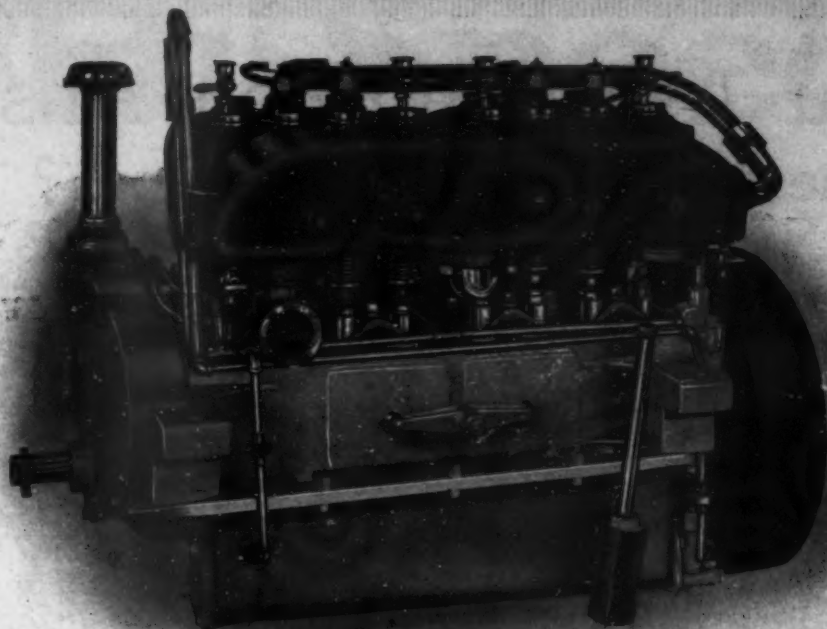
8-10 H.P.	Bore 4", Stroke 6", complete with gear—\$240
12-16 H.P.	" 5", " 6", " " " —\$275
20-24 H.P.	" 5 1/2", " 7", " " " —\$375

PEERLESS MARINE MOTOR CO.
—BUFFALO, N. Y., U. S. A.—

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*Same Motors Have Been Sold
by Dealers at \$250 to \$300*

This low price of \$160 for a guaranteed 20 h.p. motor is the result of wonderful efficiency in manufacturing methods, buying materials in huge quantities and turning out a big number of motors of one type. Bear in mind that in this case, low price does not mean any shaving of quality. You get the Waukesha standard of material and workmanship—which means that you get the best material and construction that can be put into a motor.

This same 20 H.P. Waukesha Motor has not only been sold by dealers throughout the U. S. at \$250 to \$300, but they have been sold in Norway, Holland, New Zealand, Siam and other countries and all are giving *unlimited* satisfaction. Ask us for testimonial letters from users of these motors who back up all our claims.

We offer these motors to dealers, jobbers, boat-owners—anyone who is in the market for a genuine bargain in Marine Motors—any quantity—at a price that never has been offered before and probably never will be offered again in the history of marine motor building. \$160 for a guaranteed 20 H.P. Waukesha motor! Did you ever hear of a price like that before? Do you ever expect to again?

Write us now for full details of this most unusual offer. In writing state whether you are a boat owner, jobber or dealer

WAUKESHA MOTOR CO., 200 Factory St., Waukesha, Wis.

Specifications

These motors are 4-cyl. 20 H.P.—bore 4 in.—stroke 4 in.—diameter flywheel 15¼ in.—diameter crank shaft 1½ in.—clear diameter valves 1¾ in.—width between engine bed 17¾ in.—3 in. drop—center crank shaft to bottom of base 8 in.—length over all 34¾ in.; height above center of crank shaft 17½ in.—diameter of propeller shafting 1¼ in.—diameter exhaust pipe, iron pipe size 1½ in.

They are provided with Waukesha Special oiling system, starting crank, marine water-cooling system, manifold, bronze gear pump, bronze water piping and provision for magneto. Built of best materials throughout and have many valuable special features found in no other motor except the Waukesha.

Write at once for full details.

Here is an unusual opportunity for the boat builder to save anywhere from \$90 to \$140—for the dealer or jobber to make double his usual profit—if *prompt action is taken!*

We will sell these high grade motors singly, in lots of a dozen, twenty-five, fifty, one hundred—any amount you want to buy for your own use or for re-sale. The Price is \$160 F. O. B. Waukesha, Wis. Magneto \$25 additional; Carburetor \$10 additional.

Every Motor Absolutely Guaranteed

as to material, construction and rated horse power. There will be no difficulty about securing parts when necessary, so don't let anyone scare you with the "Can't-get-parts" bugaboo.

Do You Ask—Can You Answer These Motor Boat Questions?

What Are Piston Rings?

Piston Rings are light, flexible, springy metal rings fitted around the piston head inside each cylinder of the motor.

What is Their Function?

They are designed to prevent the escape of gas between cylinder wall and piston head during compression of the fuel charge; to prevent loss of the power impulse after the gas has been exploded and to keep back surplus lubricating oil.

How Can They Fail?

They fail whenever they leak. Leakage occurs when they do not fit properly; when their contact with the cylinder wall is not equal around the whole circumference or the opening made in the ring to give it the necessary power of expansion is unsealed.

What Happens When They Do Leak?

Leaky rings cause poor compression; allow excessive carbon deposit to form within the cylinder, upon the piston head and around the piston ring grooves.

What is a Little Power More or Less?

Less power means less engine revolutions under load, slower speed for your boat and higher fuel consumption.

Why Do Leaky Piston Rings Cause Power Loss?

Perfect compression is first necessary to get a strong explosion and full power volume. Badly fitting rings with unsealed openings will allow the gas to blow past, through or beneath them on the compression stroke of the piston. They also cause the loss of some of the power impulse.

Why Do Leaky Piston Rings Increase Carbonization?

Carbonization follows the presence of lubricating oil in the combustion chamber, which can only get up there when the bearing of the piston rings is unequal or through their openings. Carbon deposit is also caused by the incomplete combustion of the gas charge through imperfect compression or by the burning of oil.



The Old Way

INSTALL LEAK-PROOF PISTON RINGS

(Made by McQuay-Norris Manufacturing Co., St. Louis)

These piston rings are so expertly designed, carefully tested and exactly finished as to secure perfect fit and properly distributed tension, ensuring a permanently effective check to all gas and oil leakage.



Leak-Proof Way

They Increase Power

Because they give practically perfect compression, being absolutely gas-tight through the equal, firm and sustained bearing on the cylinder walls which they continuously provide, and the absence of any unsealed openings.

They Save Fuel

By putting every ounce of gasoline to work to its utmost capacity and causing the full intensity of each power impulse to be applied to the piston head without any escaping.



LEAK-PROOF PISTON RINGS are elastic, tough, enduring. Their design consists of two concentric, interlocking sections with each half so opposed to the other as to seal both expansion openings. Equal tension throughout the whole ring is permanently obtained and the angle-iron form of the sections ensures the greatest strength. This is **LEAK-PROOF** individuality—the patented feature. The rings protect the cylinder—never cut or score it.

They Reduce Carbonization

By effectively holding back surplus lubricating oil and ensuring proper combustion of gas.

They Save Motor Wear

Because they are made to within a one-half thousandth of an inch of gauge, finished with extreme exactness. The special Process Gray Iron used in their manufacture is softer than the cylinder and takes all the wear—yet will outlast the motor.

LEAK-PROOF PISTON RINGS will pay the cost of their installation out of one year's saving in fuel and oil alone. And not only this, but by checking all leakage of gasoline vapor into the crank case, they prevent the deterioration of lubricating oil and the expensive wear and tear upon the whole engine that results from such a condition.



When your motor boat is overhauled have **LEAK-PROOF PISTON RINGS** installed.

MADE IN
ALL-SIZES



EASILY
ADJUSTED

To protect you from imitation **LEAK-PROOF** is stamped on the ring—inset.

LEAK-PROOF PISTON RINGS have been installed in more than 300,000 motors to replace unsatisfactory and inefficient rings originally installed by the manufacturers.

Some of the Uses of the **LEAK-PROOF** RING:

Automobiles
Motor Boats
Motorcycles
Aeroplanes

Farm Engines
Steam Engines
Air Compressors

Pumps
Refrigerating and
Ice Making Machines
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Send for Free Booklet

It tells all about piston rings and why you should equip your engine with the **LEAK-PROOF**. How it will pay you in fuel economy and prolonged motor life. Write for it.

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PISTON RINGS
"Ask the User"

Hi-Speed

ROW-BOAT MOTORS

\$35.00

For some years there has been an insistent demand for row-boat motors which would develop speed. To

\$35.00

meet this demand we offer to the public an unusually low priced, High Speed Row-Boat Motor.

For some time lovers of the motor boating with a row boat have been obliged to pay extravagant prices for row-boat motors.

It was with this in mind that the Hi-Speed was designed.

Its price while indicating a low priced motor, positively does not mean that it is of flimsy construction.

In fact we will guarantee Hi-Speed Motors to give satisfaction.

They are built for the greater part of steel, bronze and nickel and are similar in construction to the highest priced motors on the market. Each part perfectly machined and the motors operate in both salt and fresh water.

This motor contains all the attributes found in first class, finely constructed marine motors.

It attaches to any row-boat in less than one minute and may also be attached to canoes. Its weight being less than 55 lbs., it is perfectly portable and may be carried anywhere.

Cuts prove nothing about detachable row-boat motor service. Efficiency in construction, reliability, speed and power are the essential features.

These combined with economy of fuel, ease of handling and adaptability to any shape or size of row-boat, make the Hi-Speed one of the most desirable motors that has ever been placed upon the market.

PRICES AND TERMS:

Hi-Speed Motor Company, 901 Great Northern Bldg, Chicago

Enclosed find check for \$7.50 for which please ship me by } Express
one 1915 Model Hi-Speed Row-Boat Motor, balance (\$27.50) to be paid } Freight
upon Delivery.

Name _____

Address _____ City and State _____

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HI-SPEED MOTOR CO.

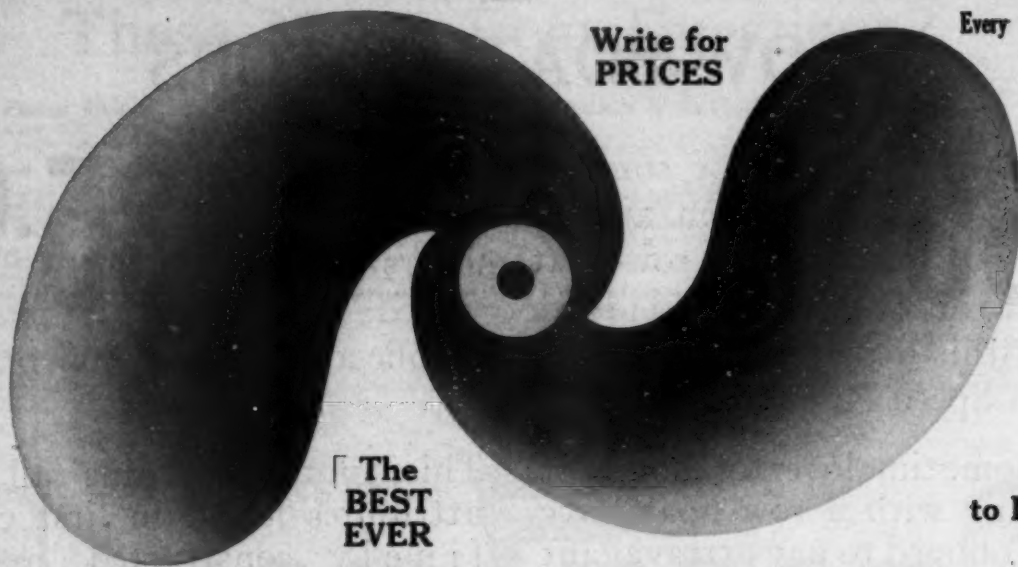
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10 inch	1.80
11 inch	2.10
12 inch	2.28
13 inch	2.70
14 inch	2.88
15 inch	3.15
16 inch	3.30
17 inch	4.30
18 inch	4.95
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34 inch	28.40
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Nearly all
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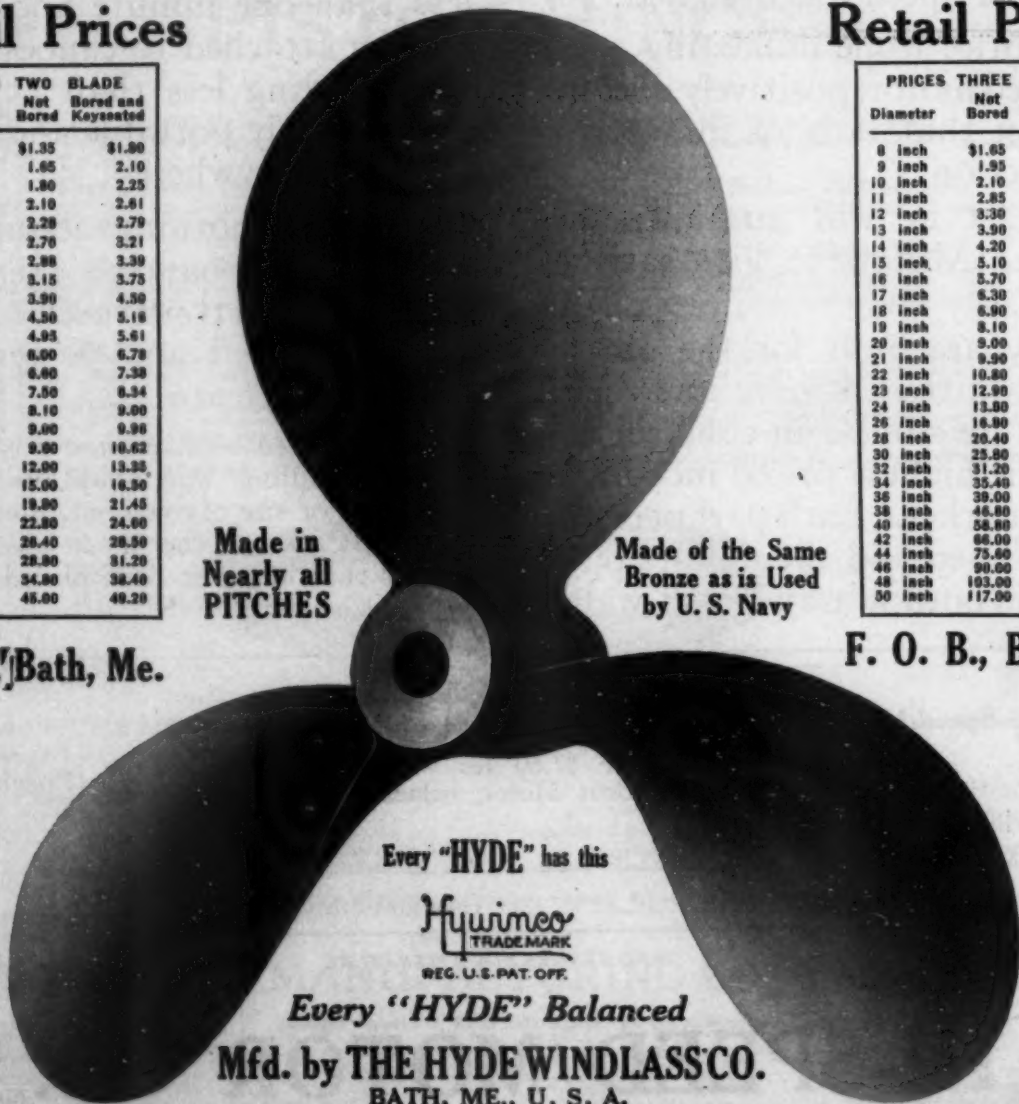
PRICES	THREE BLADE
Diameter	Not Bored and Keyseated
8 inch	\$1.65
9 inch	1.95
10 inch	2.10
11 inch	2.85
12 inch	3.30
13 inch	3.90
14 inch	4.20
15 inch	5.10
16 inch	5.70
17 inch	6.30
18 inch	6.90
19 inch	8.10
20 inch	9.00
21 inch	9.90
22 inch	10.80
23 inch	12.90
24 inch	13.80
26 inch	16.80
28 inch	20.40
30 inch	25.80
32 inch	31.20
34 inch	35.40
36 inch	39.00
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44 inch	75.60
46 inch	90.00
48 inch	103.00
50 inch	117.00

Made of the Same
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by U. S. Navy

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Every "HYDE" has this

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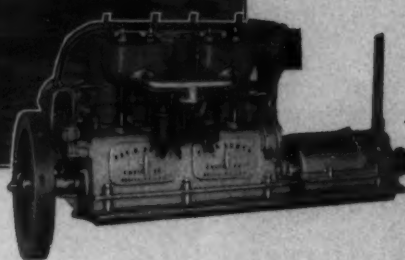
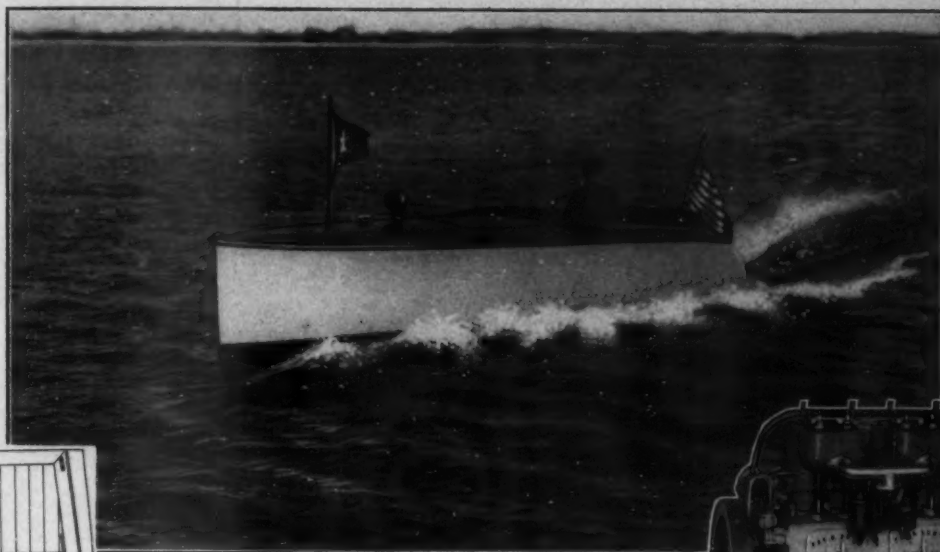
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from
Which
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While in
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Junior Runabout

(24 Feet x 5 Feet)

16 Real Miles an Hour Guaranteed!

Moderate in Price and Complete in Appointment

Modern raised-sheer design; dry and seaworthy;—copper and brass fastenings;—full mahogany finish;—divided front seats;—latest Wilcox and Crittenden auto steering wheel with engine controls;—electric lights;—electric signal;—real starter;—fuel indicator;—carburetor regulation on bulkhead;—linoleum on floor;—fully upholstered;—Maxim silencer;—Bosch magneto;—reverse gear;—four-cylinder, four-cycle Fay & Bowen engine, 3½ x 5; bronze rudder, bronze propeller, shaft and bearings;—flags and staffs, mooring lines and boat-hook, full set engine tools, etc.

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Fay & Bowen Engine Co.

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the Main Entrance.
You can't miss it.



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Supplied Complete as Desired with High Tension Magneto, Enclosed Reverse Gear, Rear Starter, Control Levers, Speed Propeller Wheel

Embodies the best engineering design, absolute interchangeability of parts, die cast bearings, hardened one piece cam shaft, enclosed valves, sight feed oiler, vertical oil pump operating in oil bath, aluminum crank case, etc.

Note the clean cut design of exhaust and inlet manifolds, no hot parts.

Send for catalog and prices—agencies going fast—

Universal Motor Co.
OSHKOSH, WISCONSIN

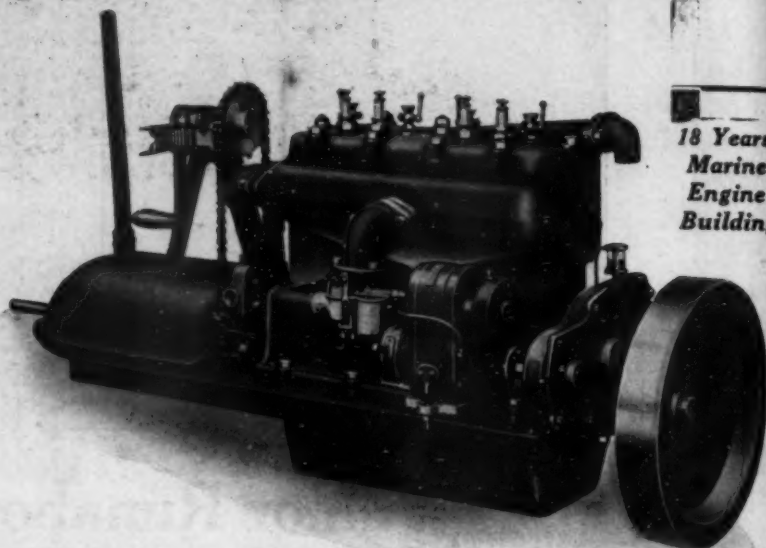
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THE MOTOR WITH EVERY FEATURE

Develops 6 to 10 H. P., Depending on the Speed.
Speed Range 800 to 2500 R. P. M., Perfect Balance.

Price \$100 to \$150 Depending on Equipment

Starts without batteries and runs until stopped without attention. Adapted to launches from 16 to 24 ft. Speed boats and auto boats, weight 250 lbs. This is not a built over auto motor, but a specially designed marine motor, capable of operating at any angle in a boat.



18 Years
Marine
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Praised Most Highly by Every User

"LAMB" DEPENDABLE SERVICE

Is Essential to the Success of Your Boat

In the Championship Races on Barnegat Bay August 11th, Mr. Harry D. Wooton's cruiser DUCHESS, equipped with a four cylinder R Model Medium Duty 24 H.P. LAMB engine defeats all boats over the 45 rating, again demonstrating the reliability and stand-up qualities of the LAMB.

The 24 H.P. size is one of the most popular of the LAMB sizes. Very compact, easy of operation, dependable, economical, pleasing in appearance and extremely smooth running, it is bound to commend itself to your attention. Built in a plant as completely equipped as is the LAMB factory, by mechanics skilled in their particular part of the work, it is bound to give that complete reliability and satisfaction so much desired in the cruising type of boat.

LAMB engines are built in a variety of sizes and are adapted to every purpose. Guaranteed as long as they are owned they fulfill our every claim.

Why don't you procure a copy of our latest catalog and acquaint yourself with LAMB construction? It's free.

We maintain an office and salesroom in the Hudson Terminal Building, New York City, for the convenience of our Eastern and Canadian customers. A complete stock of engines and repairs constantly on hand at our Service Station and Warehouse in Jersey City. An attractive agency proposition in open territory.

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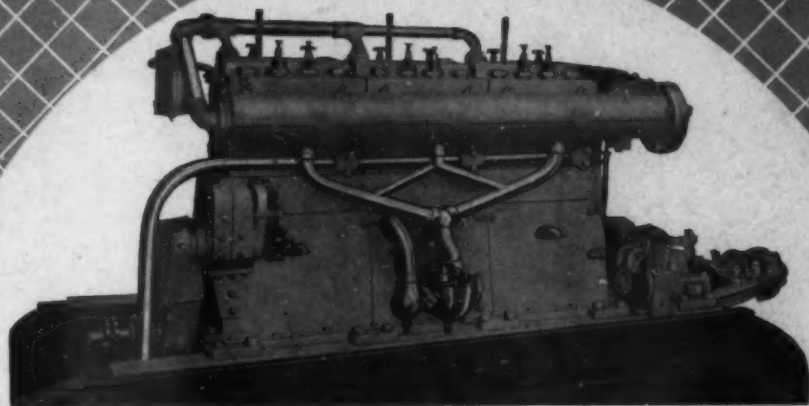
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MODEL K—"THE LIFE BOAT SPECIAL" 35-40 H.P., 6 Cylinder. Side plates removed, showing intake pipe to carburetor from within. The base air is drawn from both ends of engine through this base into this pipe, scavenging the base of all smoke and gases. Should backfire occur it would be through this pipe and could do no harm.

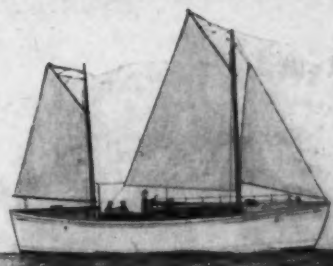
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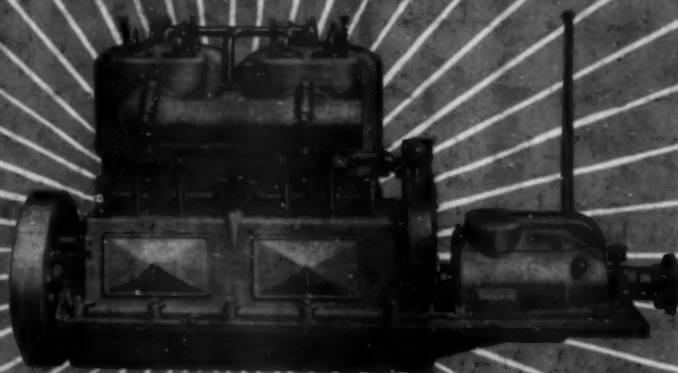
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